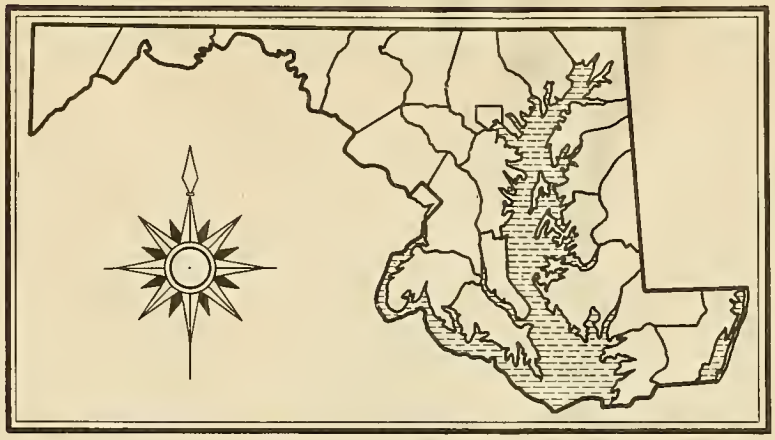

MARYLAND MAPPING AGENCY

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STATE OF MARYLAND

STATE PLANNING COMMISSION

SECOND REPORT

OF

MARYLAND MAPPING AGENCY

College Park, Maryland.

October, 1937.

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STATE OF MARYLAND

STATE PLANNING COMMISSION

Joseph I. France
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Helena Stauffer
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Thomas F. Hubbard, Associate Consultant

SECOND REPORT

OF

MARYLAND MAPPING AGENCY

College Park, Maryland.

Sub-Committee:

F. H. Dryden
T. F. Hubbard
E. B. Mathews
C. F. Merriam
H. W. Schaidt
J. W. Shirley
N. L. Smith
S. S. Steinberg, Chairman

S. S. Steinberg, Director, Maryland Mapping Agency.

C. B. Kegarice, Engineer in Charge.

Sponsored jointly by the Maryland State Planning Commission and the University of Maryland as a Works Progress Administration project.

October, 1937.

FOREWORD

The Maryland State Planning Commission herewith presents the "Second Report of the Maryland Mapping Agency."

The "First Report of the Maryland Mapping Agency" was published by the Commission in August 1936. That report outlined the causes which led to the formation of the Agency and discussed the general aims and methods of procedure. In addition the document served as a progress report on the accomplishments of the Agency. The report, with its tabulation of maps available, proved of immediate value to the engineering profession. Its reception by local engineers and agencies of other states demonstrated that it met a definite need. Several state planning boards indicated a desire to create similar agencies.

The Maryland Mapping Agency has continued in operation, with one brief interruption, since the publication of the first report. The Agency has always been hampered by the lack of funds. This results in an undermanned staff, some of whom have had no previous training in this work. However, the interest and loyalty of the men on the staff, together with the hearty cooperation of local authorities and private agencies, have enabled the Agency to continue to serve the citizens of Maryland.

This "Second Report of the Maryland Mapping Agency" is similar in purpose to the first, in that it has been written to indicate the progress made, to provide an index of the maps on hand, to state which maps are available to the public, and to emphasis both the need and usefulness of the establishment of a permanent agency. The report describes the status of the maps recorded at the Agency, and the need for more up-to-date revisions; emphasizes the desirability of using local control, with permanent known monuments, in order to secure more precise maps; and describes briefly, some of the various systems now in use in map making, pointing out the confusion which may be expected to arise later.

A state-wide system of plane coordinates is recommended to increase the efficiency and value of all surveys and to insure that a scaled distance on the map will equal the corresponding measured distance on the ground. The Agency plans to prepare a table whereby any point whose geodetic position is known may be instantly transferred to and identified by the standard coordinates.

As in the previous report, an attempt has been made to avoid the use of highly technical phrases and to correlate understandable, convincing facts so that the average layman may be informed as to the objectives.

The Commission wishes to express its appreciation for the cooperation of the Works Progress Administration, through whose assistance the Agency has operated and this report has been published.

Abel Wolman

Abel Wolman, Chairman
Maryland State Planning Commission.

R E P O R T

The Maryland Mapping Agency, sponsored jointly by the Maryland State Planning Commission and the University of Maryland, was inaugurated on February 13, 1936 as a Works Progress Administration project, at College Park Maryland, with an office in the Engineering Building of the University of Maryland. Professor S. S. Steinberg is Director and C. B. Kegarice, formerly Chief Computer on the local Control C.W.A. Project in Maryland, is Engineer in Charge.

PURPOSES AND FUNCTIONS

The purpose of this work is to collect and correlate at one agency all the maps of Maryland and its sub-divisions made by federal, state, municipal, metropolitan, corporate and private agencies, so that there will be one central point where all information concerning maps of Maryland will be available, and duplication and overlapping in work of the future may be eliminated. The advantages of this Agency to the engineers of the State are as follows: first; an engineer will be able to learn from a visit to the Agency just what maps are available for the territory in which he is directly interested; second, he can at once determine the exact value of such maps; third, he can after examining the map or maps suitable to the project at hand, learn the exact department from which they may be obtained.

As the Agency develops it is hoped that copies of each map may be available for sale or distribution.

The other purposes and functions of this agency as originally outlined are as follows:

1. To coordinate the efforts of the many agencies, federal, state, city, county, and private, making surveys and maps in Maryland, in order to avoid duplication and overlapping.

2. To develop permanent records of surveys and maps in the State.

3. To develop uniform specifications for surveying and mapping.

4. To collect and preserve all worth-while survey data, thereby salvaging for future use much valuable information now being lost; and to transcribe information to a master map.

5. To encourage engineers and surveyors to tie their surveys into the horizontal and vertical control network of the U. S. Coast and Geodetic Survey, thereby making their lines practically indestructible.

6. To encourage engineers and surveyors to adopt the use of the single plane coordinate system now being developed in Maryland, for engineering projects, for municipal and county boundaries and for private property surveys.

7. To become a depository for file copies of Maryland maps by all agencies

and to establish a Library of Maps and Charts of the State.

8. To serve as an information bureau concerning maps of the State or any portion thereof; to retail standard maps such as are in general demand; and, to a limited extent, reproduce maps for a reasonable charge.

9. To serve annually as a central meeting point for representatives of Maryland map making organizations to discuss, coordinate and plan for mapping of the State; to direct the trend of surveys and maps of the State; and to advocate consolidation of State mapping bureaus to promote efficiency.

10. To promote the continuation and completion of the local control surveys begun in Maryland under the C.W.A.; to serve as the coordinating agency for any program of mapping launched by the Federal government; and to determine priorities.

11. To sponsor legislation for the protection of survey monuments.

12. To sponsor legislation permitting entry of surveyors onto private property for purpose of using geodetic survey or state survey stations.

13. To sponsor the legal recognition in Maryland of single plane coordinate system that ties with the U. S. Coast and Geodetic Survey net.

14. To sponsor the legal adoption of the Torrens system of land title registration.

15. To acquaint engineers, surveyors, and the general public, by means of proper publicity, of the services available through the proposed agency.

PERSONNEL

The personnel of the Agency at this time consists, in addition to the Director and the Engineer in Charge, of only two men:

W. E. Shisler	Prince George's County, Draftsman, Reported for work on February 13, 1936.
R. E. Phillips	Prince George's County, Draftsman, Reported for work on February 17, 1936.

Both of these men deserve commendation for the way in which they have cooperated and also for the progress they have made in learning and adapting themselves to the work at hand.

It is noted that the force was larger at the date of the last report; but an official order "that all men not on direct relief be taken from the payroll as of December 31, 1936", reduced the force at that time to the two men named above.

From March 25, 1937,to June 30, 1937, Mr. Harding Zimmisch, was temporarily employed by the National Resources Committee, and assigned to this Agency. This additional help has been beneficial.

SUMMARY OF PROGRESS

There has been collected to date 767 maps and 96 pamphlets. All of the maps that were lithographed or printed, except those folded in and part of pamphlets, have been mounted. Tracings have been made on linen of all maps or prints of towns and subdivisions of which copies for the files were unobtainable. The work in the field and accompanying computations, as described under Local Surveys Run, has covered 22.8 miles. A computation of tables in feet has been started, reducing the geographic coordinates of the minute intersections of the Latitude and Longitude to plane coordinates.

One thousand index cards, 4" x 6", have been made up and trimmed to size together with fifteen sets of alphabetical index cards also cut out and lettered.

Maps assembled and mounted	- 355
Prints assembled and not mounted	- 264
Prints assembled printed on linen	- 84
Tracings made where prints were not available	- 64
Total	767

Subdivided as follows:

Made by Federal Agencies	- 210
Made by State Agencies	- 239
Cities and Towns Lithoprints	- 90
Cities, Towns and Subdivisions Prints	- 119
Cities, Towns, and subdivisions Tracings	- 58
Miscellaneous Prints, Tracings, Etc.	- 51
Total	767

MAPS MOUNTED

In the First Report of the Maryland Mapping Agency there was described in detail the procedure of mounting these maps, including the kind of equipment and material used.

At the present time all maps except office work sheets, either printed or lithographed, have been mounted, numbering in all 355. Maps received as prints, either blue, white or black line have not been mounted.

TRACINGS MADE

There have been instances when it has been impossible to secure a print or map for the files due to the fact that the person or organization concerned had only one copy. In these cases,such print has been borrowed, and traced on linen. The total number of tracings made and on file is now 64.

LOCAL CONTROL SURVEYS

The local control surveys were made near the office in order to facilitate transportation and the lines run were in continuation of the lines

already run by the Local Control Survey under the Civil Works Administration. The instrumental equipment used was loaned by the U. S. Geological Survey and the U. S. Coast and Geodetic Survey. All work, including the computations, was done in accordance with the U. S. Coast and Geodetic Survey, Special Publication No. 145, Manual of Second and Third Order Triangulation.

Specifications for this work in Maryland conform to those of second order traverse as used by the U. S. Coast and Geodetic Survey or better.

The first line was run along the Crain Highway, State Route #3, between the U. S. Coast and Geodetic Survey triangulation stations Harrison and White Marsh. Six permanent concrete monuments were located. The total length of this line is 40,801.208, or 7.727 miles, and the survey closes 1 in 24,631, or first order traverse.

The second line was run along the Brookville Pike, State Route #97, to Glenmont, thence to Colesville and along the Colesville Pike, U. S. Route #29, between the U. S. Coast and Geodetic Survey triangulation stations Wheaton and Stabler. Six permanent concrete monuments were located on this line. The total length of the line is 43,180.362 feet, or 8.178 miles, and the survey closes 1 in 17,180, or a very good second order traverse.

The third and last line, beginning at Glenmont on the second line, was run along the Brookville Pike, State Route #97, ending at Olney due to cessation of work, but originally planned to continue through Sandy Springs and Ashton to U. S. Coast and Geodetic Survey triangulation station Stabler. Again six permanent concrete monuments were located. The total length of this line is 36,404.477 feet or 6.895 miles. The closure of this line cannot be computed until the entire line has been run.

COMPUTATION OF A PLANE-COORDINATE TABLE FOR MARYLAND ON THE LAMBERT GRID.

The plane coordinates on the Lambert grid of the minute intersections of the meridians and parallels are being computed and tabulated.

This table when completed may be used for two purposes: the determination of the plane coordinates of a station when its geodetic position is known; and, conversely, the determination of the geodetic position of a station when its coordinates are known. The most that will be required is the occasional direct interpolation between recorded readings in order to provide for smaller increments than given in the table. No knowledge of the reduction formulae is required.

In order to cover the entire State and also to keep the successive pages of tables in order and in form, it was found that 16,960 intersections must be figured and their coordinate values tabulated. This complete tabulation will fill 212 pages, letter size, each page covering 40 minutes of longitude and 2 minutes of latitude.

It is proposed to publish this table together with other tables most frequently used in this work in a usable form. The most desirable form is that of an ordinary printed book, but the cost may prove excessive at this time and some less expensive method of reproduction may be used.

To date a list of the natural sines of the θ angles has been computed to ten places and thoroughly checked. Also a similar table of the natural sines of θ/2 to ten places has been made and checked together with a computation of the formula $2 \sin^2 \theta/2$. About half of the final form sheets for this tabulation have been ruled and lettered.

The above computations have all been made in long hand but it is recommended that a ten-bank calculating machine be used for the completion of these computations.

INDEXING AND FILING

The method of indexing and filing used is most important for an agency of this kind and it was only after detailed study of the various systems now in use that the system as described in the first report was adopted. This system is elastic enough to permit any expansion that will be sure to follow as the number and kinds of maps increase.

As stated in the First Report a symbol or abbreviation of two letters has been adopted for each County; for example, the abbreviation or symbol for Allegany is AL. Also the numerical designation for a district, the smallest division under which filing is now done, is the same as the district itself.

It is advisable also to repeat the exact form of the 4" x 6" index card which has been adopted and which follows closely in form the index card used by the Federal Board of Surveys and Maps.

INDEX NO._____

NAME_____
COUNTY_____ STATE_____
ELECTION DISTRICT_____ CITY_____
LOCATION (LAT.)_____ (LONG.)_____
COORDINATES (X)_____ (Y)_____
AREA_____
SCALE_____
PROJECTION_____
DIMENSIONS_____
HORIZONTAL DATUM_____ CONTROL_____
VERTICAL DATUM_____ INTERVAL_____
SURVEYED_____
RESURVEYED_____
COMPILED_____
REVISED_____
PUBLISHED_____
REPRINTED_____
PUBLISHED BY_____
MATERIAL_____ SIZE_____

(Additional data on reverse side) FILED_____

OFFICE AND FURNITURE

The office and furniture were described and numerated in detail in the first report. Since then the Maryland State Planning Commission has purchased seven sections of filing cabinets of five drawers each and a six-drawer 4" x 6" card index cabinet.

The plans for the filing cabinets were made in the office of the Mapping Agency and the cabinets were built locally at a considerable saving in cost. The large drawers required special construction, making the cost prohibitive if purchased from the regular drafting and office furniture manufacture.

There are now available 59 drawers, as follows:

16	drawers,	clear dimension	42" x 32"
8	"	" "	42" x 31"
15	"	" "	56-1/2" x 45-1/4"
20	"	" "	44-1/2" x 39-1/4"

The larger sizes have been necessary to provide drawers of sufficient width and depth to file the county maps drawn to a scale of 1:62,500.

CONTACTS

It is the policy of the Agency to make all personal contacts possible, but there are times and conditions which, with our present limited facilities, make unavoidable certain contacts by mail. The mail is used, however, only as a last resort. The majority of contacts have been made in quest of maps or prints and in securing copies which are now on file. Occasionally the contact is in the nature of a visit for the purpose of making known the workings of the Agency with a view toward future assistance or support.

These contacts were made with Federal, State, County, Metropolitan, Municipal, Corporate and private agencies that have any map or maps of large areas or of principal interest and of a public nature.

Worthy of note is the publicity provided by the newspapers, most important of which is the article "Mapping the State from the Stars" as printed in the magazine section of the Baltimore Sunday Sun, Sunday, December 28, 1936, in which the functions and purposes of the Agency are clearly set forth.

Group contacts have also been made by the Director. For example, Professor Steinberg addressed the regular monthly meeting of the Washington Society of Engineers at the Cosmos Club on April 7, 1937. He spoke on the topic "The Maryland Mapping Agency", explaining fully its present status and pointing out its aims and future possibilities.

COOPERATION RECEIVED

Appended to this report is an index of maps and pamphlets that have been assembled to date, together with the name of the agency, corporation or individual publishing them.

Especially noteworthy was the active cooperation of J. A. Bromley, County Roads Engineer, in acquiring prints of waterfront properties in Anne Arundel County and of W. F. Childs, Jr., Manager Inventory Department of the Maryland Highway Planning Survey in acquiring prints of towns.

It must be remembered that this is a "work project" and that no money was available with which any map or maps might be purchased. The maps now on file have been contributed by the various agencies publishing them and it is their full cooperation and generosity that has made possible the results shown by this report.

RECOGNITION OF PROJECT

It is gratifying to report that the project has received most favorable comment not only in Maryland, but in other States as well. Our pioneer efforts in this field have been recognized by both inquiries and favorable comment from the Federal Government and practically all of the States actively engaged in any form of State Planning.

The following excerpts from letters received show the interest with which our efforts have been received:

"I am interested to know just how far you have been able to carry this work and what method you use for indexing plans and correlating information contained in the various surveys.

I have been given two months in which to make a report on the feasibility of the creation of such a Division and I am particularly interested in your views as to whether this Division should be created by legislative act or whether or not it could be created under the present general laws. I am also interested to know what method you use in requiring private engineers to submit their maps to your office."

"You are doing a real pioneer work....I hope also that the office may be placed on a permanent basis, as to my mind it is decidedly in the public interest."

"I wish very much that other States would follow the example of Maryland."

"My only regret is that similar projects are not under way in all of the forty-eight States."

"The Maryland Mapping Agency is to be congratulated on the initiation of this very worth-while project."

TREATMENT OF INFORMATION RECEIVED FROM PRIVATE ENGINEERS

To the many engineers who have cooperated by furnishing private plans or maps of towns and subdivisions, and also for the information of those who have plans that have not yet been received, the policy of the Agency has been and will continue to be to treat the information contained thereon as private.

Inquiries received are answered with a general description of the plan and the name and address of the engineer from whom the exact information may be obtained. Plans will be used only for record and for making new or revised editions of maps.

THE NEED FOR MAPS AND THE STATUS OF PRESENT MAPS OF MARYLAND

THE NEED FOR MAPS AND THE STATUS OF PRESENT MAPS OF MARYLAND

We are at the beginning of an age of engineering planning and all agencies either public or private are demanding maps on which to visualize their problems and to lay down the details for their solution.

Maps in general range from the most modern topographic map to the road map at the filling station, each in turn meeting the needs of its users. Some users may want only a bare outline showing roads, streams, etc.; others only areas for plotting census data; but others may require minute details for planning and laying out engineering work. The maps giving the data covering the latter requirment are the maps the writer has in mind in this discussion.

The maps that are now available of Maryland met the needs of the user at the time they were made. Many are of a date that, for present use, a partial survey is first necessary to bring the culture up-to-date before they can be used with assurance. (See Topographic Maps). Today we are engaged in more costly works, such as building of bridges, dams, power plants and highways together with extensions of pipe, telephone, telegraph and power lines and distances should be known with accuracy to avoid financial difficulties in preliminary estimates. For the thickly populated and metropolitan areas a larger scale is recommended for published maps. It is true that to enlarge the scale of a map increases its cost, but the greater value in the use will more than make up for the additional cost. The larger scale will show more clearly the details and more accurate information will result.

To show the extent of the use of maps of Maryland, we enumerate the following Departments and Agencies interested in mapping:

STATE DEPARTMENTS

Department of Education

The University of Maryland
College of Agriculture
Experiment Station and
Extension Service

Geological and Economic Survey
(Maryland Geological Survey)

Weather Service

Department of Forestry

Department of Militia

Department of Health

Department of Public Works
(The State Roads Commission)

Department of Maryland State Police

FEDERAL AGENCIES

Soil Conservation Service

Emergency Conservation Work

Federal Board of Surveys and
Maps

Resettlement Administration

Post Office Department

Rural Electrification Administration

Coast and Geodetic Survey

Geological Survey

National Park Service

Forest Service

U. S. Army, Corps of Engineers

STATE DEPARTMENTS

The Conservation Department

Game Department of Maryland

Public Service Commission

Bureau of Mines

Upper Potomac River Commission

The Chesapeake Bay Authority Board

Washington Suburban Sanitary Commission

State Aviation Commission

National Capital Park and Planning Commission

Waterfront Commission

Water Resources Commission

State Planning Commission

Emergency Housing and Park Commission

FEDERAL AGENCIES

Public Works Administration

Works Progress Administration

Weather Bureau

Bureau of Public Roads

Bureau of Chemistry and Soils

Hydrographic Office, Navy Department

OTHER AGENCIES

All local taxing bodies

All regional planning agencies

All county planning agencies

All local planning agencies

TOPOGRAPHIC MAPS

The entire State has been mapped by the United States Geological Survey. The surveys from 1895 to 1912 were made in cooperation with the Maryland Geological Survey and the published maps are available in two sizes both having the same scale of 1:62,500 or one inch equals nearly one mile.

The engraved maps as published by the United States Geological Survey are about 16-1/2 x 20 inches comprising one unit or quadrangle and covering an area of from 229 to 236 square miles. The area differs according to the latitude. The boundary lines of these quadrangle sheets are parallels of latitude and meridians of longitude at 15-minute intervals. A portion of the State is also published on sheets of the same size as the quadrangle sheet but covering from 919 to 938 square miles. The scale is 1:125,000, or one inch equals nearly two miles. Each of the maps represented by the rectangles shown in Figure II and Figure III has a contour interval of either 10 or 20 feet, but as the entire area shown on the quadrangle sheets Bloodsworth Island and Crisfield is less than 10 feet above sea level these maps have no contour lines. The maps of the smaller scale of 1:125,000 have a contour interval ranging from 10 to 100 feet.

Figure II shows the present status of the United States Geological Survey topographic maps as furnished this Agency by them, together with the following data and recommendations.

The quadrangle sheets shown blank represent a total area of 3,839 square miles for which the topographic maps are considered adequate for present requirements. Of this area the quadrangle sheets Indian Head, Leonardtown, Prince Frederick, and Upper Marlboro are so recent that the advance sheets only are available as noted in the index, and the field work is now being done to make a new sheet of the Laurel quadrangle.

The quadrangle sheets shown cross hatched represent a total area of 4,701 square miles for which the topographic maps are considered inadequate for present requirements. This area should be remapped. The Baltimore Metropolitan Area, outlined by the heavy line should be remapped for publication on 7-1/2 minute quadrangle sheets. The area thus recommended is 1,142 square miles. The remaining cross hatched area comprising 3,559 square miles should be remapped on the 15-minute quadrangle sheets.

From the above figures it is found that only 31.1 per cent of the area is considered adequately mapped for present requirements, the remainder is in need of revision of cultural features or of remapping.

Figure III shows the index to the United States Geological Survey topographic maps and the name by which each quadrangle is designated. The names shown are of a city, town or prominent natural feature within the area covered.

In this connection it should be noted that approximately 431 square miles adjoining the Chesapeake Bay, in areas where topographic maps are inadequate, are covered by maps without contours on the 1:20,000 scale which were compiled by the United States Coast and Geodetic Survey, described and indexed later.

The topographic maps published by the Maryland Geological Survey are of the same scale as those of the United States Gological Survey, 1:62,500. The unit sheet is much larger since these are published by counties, each sheet being an entire county. The size of the map, therefore, varies according to the area of the county.

The entire State has been covered with these maps, some are old and need revision, some are out of print, while new editions are in press for some as shown in Figure IV. The contour interval is either 10 or 20 feet as noted after each listing in the index appended hereto.

The present status and recommendations as furnished this Agency by Dr. Mathews, State Geologist, Maryland Geological Survey, are as follows:

Allegany County	Last edition in 1934. Needs revision to show new election districts and growth of the region.
Baltimore County	Last edition 1924 although later reprints incorporated a few revisions each time. This may be revised more completely for the next edition.

Carroll County	Out of print. A new edition is ready for issuance during 1937.
Charles County	Last edition 1914. Needs a new base as parts of the region have been resurveyed but the entire area has not yet been covered by the new survey which very appreciably alters by increased details in contouring. The unsurveyed portion and the new survey differ so widely that it is impossible to put the parts together and it is necessary to wait for the Federal agencies to complete their revision.
Garrett County	Out of print. Field revision has been made and it is planned to publish this map during the present fiscal year.
Howard County	Last edition 1927. Should have a new edition to bring it up to date although there are enough copies of the old edition to meet the demand for the present.
Montgomery County	Last edition 1927. Should be revised and reissued showing the suburban development during the last ten years.
St. Mary's County	Last edition 1929. Has been partly resurveyed and should have a new edition as soon as the work is completed.
Wicomico County	Last edition 1905. Needs a new edition to show the change in election districts which, however, has been incorporated in the base of the Agricultural Soil Map of 1935.

Additional maps published by the Maryland Geological Survey are geological, forestry, urban, state and soils.

GEOLOGICAL MAPS

The geological maps are of the same scale 1:62,500 as the topographic maps and are also published by counties. Old editions of Allegany and Garrett counties were issued but are now out of print and new editions should be issued as soon as the geological studies incorporating recent developments in coal operations, particularly in the Castleman Basin, have been completed. There is considerable demand for these maps and new editions should be issued at and early date. The geological maps of Caroline, Dorchester, Howard, Somerset, Washington, Wicomico and Worcester counties have not been made but should be issued as fast as money is available to pay for them. The complete status is shown in Figure V.

FORESTRY MAPS

It was originally planned to issue maps showing the forestry conditions, on the scale of 1:62,500, of each of the counties but only editions for nine of the counties have been issued. This work has been practically suspended. The counties covered by these maps are shown in Figure VI.

URBAN MAPS

Urban maps on scale of one inch equals 1,000 feet. Seven of these maps have been issued covering Baltimore and vicinity. The Curtis Bay and Dundalk sheets are out of print and might be reissued but there is very little demand for these sheets.

Cumberland — Issued in 1916. Out of print. New edition with revision showing later developments should be issued.

Hagerstown — Three editions have been issued for Hagestown, the last in 1927. It should be revised, brought up-to-date and a new edition issued.

Frederick — This area was surveyed some years ago, but never published and should be thoroughly revised before publication.

Urban maps on scale of one inch equals 2,000 feet. Three such maps have been issued, based on work of the CWA showing the change in drainage and land areas since Baltimore was established; contour map showing probable position of the surface of the underlying crystallines; and a third map combining information to show the amount of overburden on the underlying chrystalline rocks for the region.

STATE MAPS

State maps have been issued on various scales. The 16 miles to the inch (1:1,000,000) and 8 miles to the inch (1:500,000) are outline maps for which there is relatively little call and there is no special need of new editions at the present time.

Six miles to the inch, the latest base map showing:

1. Hypsometric map showing by layers the variation in elevation, issued in 1935.

2. Geological map, showing in considerable detail the geology of the State as a whole.

3. Political map showing the counties in different colors. There is a small edition for special use showing the election districts overprinted on the last map. The election districts change and maps of this character are soon out of date. It is doubtful if there should be an issue of such maps for general distribution as the demand is small.

Five miles to the inch, first issued in 1910, shows the roads and transportation lines and has become widely known by the yearly editions issued by the State Roads Commission, using this map as a base.

SOIL MAPS

Agricultural soil maps are published in cooperation with the U. S. Department of Agriculture, Bureau of Soils, and the University of Maryland Agricultural Experiment Station. They are published in county size and to

the scale of 1:62,500, the topographic map previously described being used as the base. Maps are available for all of the counties and no figure showing their status has been made. (Note: These maps are not the same as the folded maps in the back of the Soil Survey pamphlets listed in the index of bulletins and pamphlets which are published by the U. S. Department of Agriculture.)

NAUTICAL CHARTS

Since the water area is about 20 per cent of the total area of the State of Maryland, these charts are most essential in the complete mapping of the State

The nautical charts as published by the U. S. Coast and Geodetic Survey are primarily for navigational use and portray the water areas rather than the land; however, a strip of topography (herein before described) extending a short distance inland is usually shown and back of this only landmarks visible at sea are included.

Field surveys are made on a much larger scale than those on which the chart is published. The larger scales permit the showing of greater detail and provide a more comprehensive record of the conditions existing at the specific time the survey was made. The chart is also frequently a compilation of data secured at different times. One portion, comprising an unchanged area, may be based on a survey of years ago, while another part, subject to natural or artificial changes, shows the results of very recent surveys. New editions of these charts are issued from time to time as the changes warrant and both new charts and new editions of charts are listed on a special card sent out monthly to those on the mailing list for the same.

The shore line of Maryland and its waterways are covered by both Coast and Harbor Charts and Sailing and General Charts on a smaller scale of approximately 1:200,000 which covers the Bay and tributaries from Havre de Grace to Cape Henry on two charts. The indentification number, location and border size of these charts are shown in the index. The scales are shown together with lengths of both the nautical and statute miles on the corresponding scales for convenience of the occasional user.

A complete index of the entire country and possessions may be found in Serial No. 577, Catalogue of U. S. Coast and Geodetic Survey Nautical Charts, Coast Pilots, Tide Tables, Current Tables, Tidal Current Charts, and Airway Maps.

AERIAL PHOTOGRAPHS

The total shaded areas as shown in Figure VII represent approximately 53 per cent of the total land area of the State and since the work is well under way in the areas marked as "area now being photographed" - it will be treated as an entirety.

It is impossible to enumerate in the legend the different agencies responsible for this work as the metropolitan areas and parts of the area between Baltimore and Washington have been photographed at different times by different agencies.

The largest individual area, comprising parts of Cecil, Harford, Baltimore, Howard, Prince George's, Charles, St. Mary's, Calvert, Talbot, Queen Anne's, and Kent counties, and the entire area of Anne Arundel county, was photographed, in 1934 by the U. S. Army Air Corps, Bolling Field, with a multi-lens camera. Three other areas have also been photographed by the U. S. Army Air Corps, - a circular area having a radius of 18 miles around and including the District of Columbia; the rectangular shaded area in Worcester County and a strip about 4 miles wide from the Chesapeake Bay winding through Baltimore City, Howard, Carroll, Baltimore and Harford counties to Aberdeen, not shown shaded in the figure.

The Soil Conservation Service, using a single lens camera, has photographed the shaded area on the boundary line between Washington and Frederick counties, the separate shaded area in Carroll and Baltimore counties and a rectangular area of 155 square miles covering parts of Anne Arundel, Prince George's, Montgomery and Howard counties. The latter area is not individually marked in the figure as this area is covered by other photographs. The total area photographed by the Soil Conservation Service is 412 square miles.

The Agricultural Adjustment Administration has photographed Kent County and has now under contract to be photographed all of the area shaded and shown in Figure VII as "area now being photographed," together with a portion of Charles, Prince George's, Talbot and Queen Anne's overlapping areas already photographed. A single lens camera is being used.

The only private agency having photographed any large area is the Pennsylvania Water and Power Company which has photographed an extensive area from Baltimore to Washington not shown individually in Figure VII and also the two strip areas shown shaded from Baltimore to the Pennsylvania line.

Other areas have been photographed in various parts of the State that are not shown in Figure VII due to small scale and overlapping. Some of these are:

The Baltimore and Washington Boulevard from Baltimore to Washington for the State Roads Commission. The Atlas of these photographs is now on file in this office.

The National Highway from Baltimore to the Pennsylvania State line for the State Roads Commission.

A portion of the Middletown Valley in the vicinity of Camp Ritchie, Third Corps Area, National Guard.

Individual projects of the State Roads Commission such as locations of bridges, roads, and grade crossing eliminations, some proposed and others completed, in all parts of the State.

The Chesapeake and Delaware Canal has recently been photographed by the U. S. Coast and Geodetic Survey with their new nine-lens camera.

NEED FOR A STATE SYSTEM

OF PLANE COORDINATES IN MARYLAND

NEED FOR A STATE SYSTEM OF PLANE COORDINATES IN MARYLAND

There seems little doubt that if in any region all surveying and mapping is based on an approved standard projection, much duplication will be avoided, and the various surveys and maps so based will be rendered more valuable than would be the case if the various agencies, public and private, interested in surveys and maps of the area, adopted their own separate standards.

In Maryland the latter situation exists and much confusion results in any attempt to relate these standards to one another. The Washington Suburban Sanitary Commission figures all of its surveys on a coordinate system having the dome of the Capitol at Washington, D. C., as its origin. The Anne Arundel County Sanitary Commission figures all of its surveys on a coordinate system having the intersection of parallel 38°55' and meridian 76°35' as its origin. Baltimore City figures all of its surveys on a coordinate system having the Washington Monument in Baltimore, as its origin. The system used by the Pennsylvania Water & Power Company is one in which a plane tangent to the earth's surface at parallel 39°50' and longitude 76°24'17".2 is the prime meridian. In addition to these systems there are still others in use by numerous public and private agencies.

It is obvious that with the expansion of these metropolitan areas and their coordinate systems, conflict in references would result. This inevitable confusion can be avoided by the adoption of a projection that will give a state system of plane coordinates having sufficient accuracy for all surveys in the State.

It is true that adopting such a projection will involve the cost of making the change. This, however, would be much less at this time than at any later date, and can be credited to the economic advantage in future uses.

The need for a state system of plane coordinates becomes evident in the work of any State Department or in the work of any public utility operating over the entire State or any large part of it.

The State Roads Commission has, at some time, made surveys of practically all of the roads in the State; but these surveys are individual and entirely local to the road or section of road covered. It is impossible to plot or in any accurate way transfer a combination of all or any number of these surveys to a single map. The cost of making these surveys is directly chargeable to the specific job or project for which they were made and their resale value, so to speak, is nothing. Had these individual surveys been tied to a State wide system of plane coordinates, each would have a determinate resale value, for they could be reproduced accurately and plotted collectively. The original cost would not have been more, while its salvage value would have been equal almost to the original expenditure.

Realization of the need for a state plane coordinate system is forcibly being pointed out at this time when the Maryland Highway Planning Survey is preparing county maps of the State on which to submit the results of their investigations to the Bureau of Public Roads with whose cooperation this work is being done.

The accuracy of surveys also increases if they are controlled. A survey that is not controlled begins with an assumed point, is run in all directions and errors are accumulated. There is no way of measuring these errors or even knowing to what extent they exist. The result is that the work is of unknown accuracy. The data overlap or there may be gaps. But controlled surveys will form a composite structure, each in its true position with reference to the other, with the result that the maps of our highway system or other maps from such controlled surveys have greater value.

In this connection it should be added that definite coordinates, either plane or geographic, of county boundary lines are not available and are greatly needed.

The new right-of-way now being acquired for the Philadelphia Road and the Annapolis Boulevard could be definitely and permanently tied in if a state system of plane coordinates was in use. This example is mentioned only to point out the importance of an early adoption of a coordinate system.

To the Department of Forestry a state wide system of plane coordinates would be valuable in two distinct and different uses. First, its scattered and various parcels of land, each individually surveyed and located, and in no way tied to each other, unless those directly adjoining, could be permanently marked and definitely tied together. Second, the method of locating and recording fires would be simplified and made more accurate with coordinately located fire towers with distances and azimuth correctly figured between them, and by use of both local and master maps platted on the same plane coordinate system.

The system would also be of great value to public utilities. A power line whose transmission towers were located coordinately would be of great benefit, not only to the company, but also to the various Departments having jurisdiction, because their location could be established definitely, either entirely or in part, as well as the location of the source of power, the outlet and their relations to the State, County, and municipal boundaries.

The above mentioned benefits to the agencies named are only a minor part of the advantage of a state wide plane coordinate system when compared with the use and advantage of such a system in land and property surveys. While the use in the first case is on a much larger scale, in the case of the latter, the large number of surveys, even though not extensive in an individual case, would in the aggregate be of tremendous benefit to all the citizens of the State.

The physical marks now in use for marking property boundaries would under a plane coordinate system become perpetuated and could be reproduced at any time. For example, a corner designated as an elm tree, the former location of which is indefinite after the tree has been removed, would have a designation in terms of x and y coordinate values that would make the location of that corner permanent.

CONTROL SURVEYS

*"Control surveys consist of triangulation and leveling, the networks of which are now being spread all over the United States."

*Capt. R. S. Patton, Director, United States Coast and Geodetic Survey, Extracts from Hearing before the Subcommittee of the House Committee on Appropriations..

The geographical location of Maryland with its rivers and the Chesapeake Bay has been most fortunate from a survey standpoint; for there have now been established by the United States Coast and Geodetic Survey about 800 triangulation stations, with the geographic position of each computed. In fact, with the exception of Garrett, Frederick and the western parts of Carroll and Howard counties, there is sufficient control to facilitate greatly the extension of local control surveys. This is indeed an asset for it means that the local control survey can be run and completed with only a small amount of triangulation work being required.

The level net is also sufficiently extensive to govern the adjustment of the local control survey levels.

Both the triangulation and the first and second order leveling as done by the United States Coast and Geodetic Survey, complete to January, 1936, are shown in Figure I.

*"A chart or map is a definite tangible product. You can pick it up and look at it and appraise it and appreciate its value. These control surveys are intangible in the value of their results. That is, it is hard to visualize them, and particularly had for the man who is not an engineer. But the control surveys are to mapping, to highway construction, to railroad building, to power and pipe line extension, to irrigation projects, to flood control, in fact to every engineering operation that requires accurate knowledge of the surface of an extension area -- the control surveys are to those projects what the steel framework is to a building. They give form and strength and rigidity to the whole thing. They are concealed inside the finished product. The public never sees them. Yet they are serving that essential purpose."

Geographic coordinates are used by the Federal Government in making hydrographic and topographic surveys in order that the charts and maps may coordinate with those made in other parts of the country. For local use, these geographic coordinates are not practical generally in engineering for their establishment requires special knowledge and training not needed for local surveys.

With a state system of plane coordinates which uses geographic coordinates for its control, the knowledge and training required is reduced to a minimum, and in fact eliminated entirely for the surveyor after the local control survey is completed and in use. The work is done and computations made according to the methods of plane surveying.

The reductions from the geodetic to the plane coordinates, which is done in making the local control survey, does require some special knowledge and training in the use of special formulas and tables prepared by the United States Coast and Geodetic Survey for these conversions and reductions; but the information furnished for all points to the surveyor or engineer will be plane coordinates x and y together with an azimuth, thus permitting them to make their surveys and computations in the accustomed manner, providing that the survey is not too great in extent.

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*Capt. R. S. Patton, Director, United States Coast and Geodetic Survey, Extracts from Hearing before the Subcommittee of the House Committee on Appropriation.

When the local control survey has been completed and permanently monumented satisfactorily for the control of detailed surveys, there would remain no individual area too large to be treated as a plane.

LOCAL CONTROL SURVEYS

The United States Coast and Geodetic Survey has made the control survey as already described but the local control surveys to be described in the following must be made by the State.

To derive the benefit of the government control now established it is necessary to continue the local control and establish more known points by placing monuments easily accessible for all surveys. The purpose of the local control surveys is to fill in the unsurveyed areas between the triangulation stations and bench marks established by the United States Coast and Geodetic Survey with supplemental stations that will serve satisfactorily for the control of detail surveys. The positions and elevations of these stations will be determined by surveys based on the triangulation stations and bench marks of the national control surveys. The horizontal positions will be determined by traverse lines, or triangulation where necessary, run between triangulation stations; and the elevations above sea level of the bench marks determined by lines of levels between the bench marks of the national level net.

Specifications for this work have been prepared by the United States Coast and Geodetic Survey and during the late winter of 1934-35 about 300 miles of traverse and levels were run in Maryland over permanently monumented points under the Civil Works Administration. This work was done in locations scattered all over the State so that the work so accomplished would be available to all. The records of the results of this work have been preserved and can be used for continuation at any time. Due to the sudden ending of this work some of the lines were not completed, but they can be picked up and continued when this work is resumed. When these lines are run it will be advantageous to tie with all existing survey marks, state, county and city boundary monuments, and other prominent features that will be valuable in aerial survey work.

The standard marks or monuments should be placed in pairs, and there should be not less than one pair of monuments for every two miles of traverse. Each pair should be intervisible and about 1/4 mile apart, so that location, azimuth, and elevations will be available and accessible.

STATE SYSTEMS DEVELOPED

It is interesting to note that the computation of tables for state wide systems of plane coordinates was undertaken at the request of a practical engineer and surveyor. Early in 1933, George F. Syme of the North Carolina Highway and Public Works Commission, requested by the U. S. Coast and Geodetic Survey to consider a system or systems of plane coordinates for the State.

As a result of studies the Lambert conformal conic projection with two standard parallels was chosen. This projection is suitable for a state having its greatest extent from east to west and if its extent--from north to south is within a limit of 158 miles, the departure from the true scale will be within one part in 10,000. This is also the system recommended for Maryland and described in part later in this report.

Not all states were this shape so a study was made for a coordinate system for a state having its greatest extent from north to south and New Jersey was chosen for this purpose. This study developed the transverse Mercator projection for this shape.

At about this time the Civil Works Administration program was launched and early in 1934 systems for the 48 states had been completed. At present the work in Maryland, and previously described, has not been carried to completion but should be as soon as feasible. However, this work has been continued in the following states: Arkansas, Connecticut, Florida, Georgia, Massachusetts, New Jersey, North Carolina and Oklahoma.

THE LAMBERT CONFORMAL CONIC PROJECTION WITH TWO STANDARD PARALLELS.

This projection, devised by Johann Heinrich Lambert, first came to notice in his Beitrage Zum Gebranche der Mathematik und deren Anwendung, Volume 3, Berlin, 1772. Although used for a map of Russia, the basin of the Mediterranean, as well as for maps of Europe and Australia in Debe's Atlas, it was not until the beginning of the World War that its merits were fully appreciated.

The French armies, in order to meet the need of a system of mapping in which a combination of minimum angular and scale distortion might be obtained, adopted this system of projection for the battle maps which were used by the Allied forces in their military operations. It might be added here that France is divided into three (3) zones for coordinate purposes.

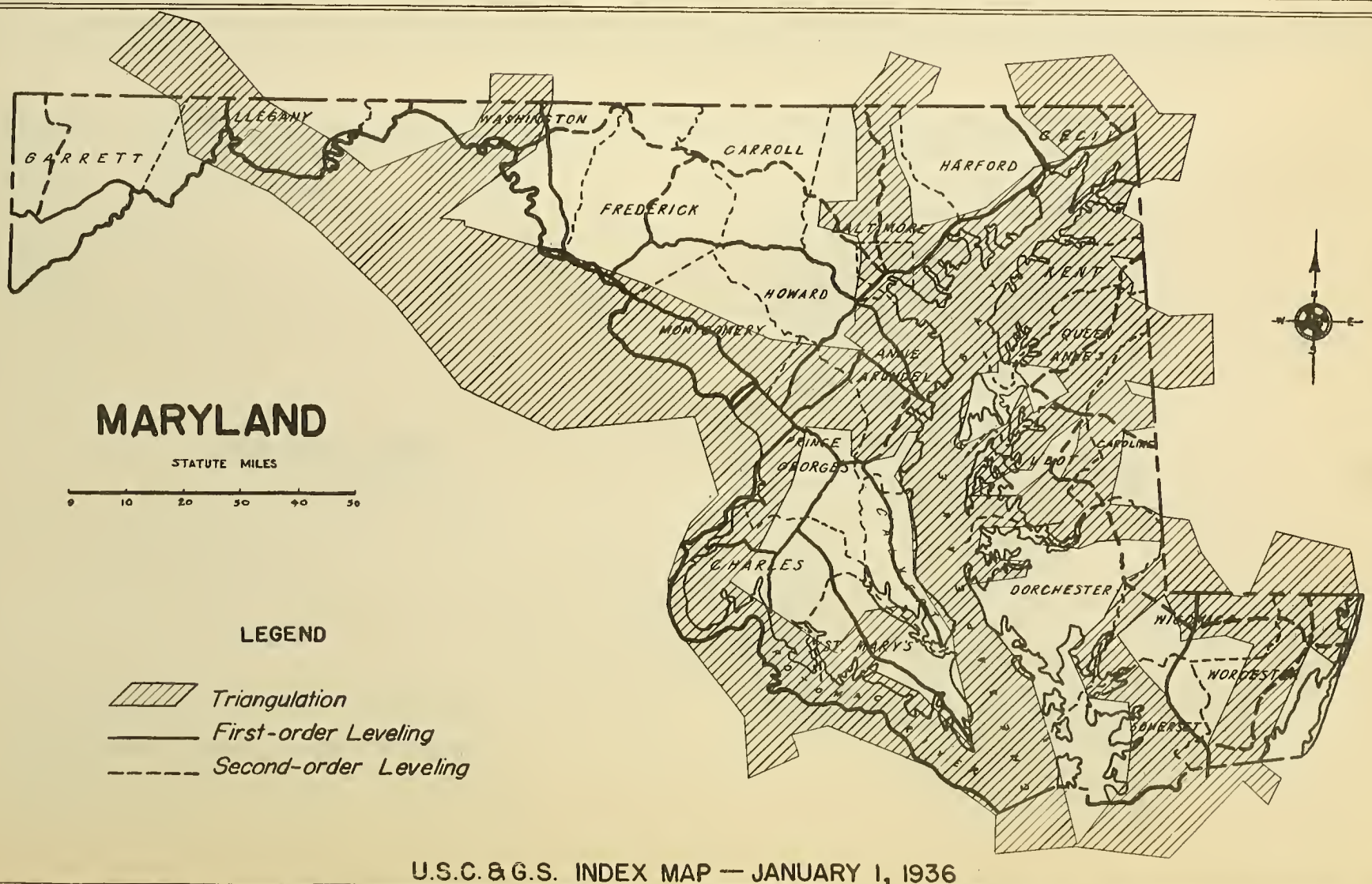
The extent of Maryland in a north and south direction has permitted the use of one zone. By using the parallels of 38 degrees 18 minutes and 39 degrees 27 minutes as exact scale of the projection, makes the scale of the projection equal to one part in 20,000, or better, from the Mason and Dixon line as far south as about Point Lookout. From there to the most southerly point of the State the error reduces to one part in 11,000.

Projection tables prepared by the U. S. Coast and Geodetic Survey are used in making all computations. A table is also provided which corrects the errors to exact scale at all points.

The above historical sketch and short description is given to call attention to the fact that this projection is not new and that it is adapted with all desired accuracy to a state the size and shape of Maryland.

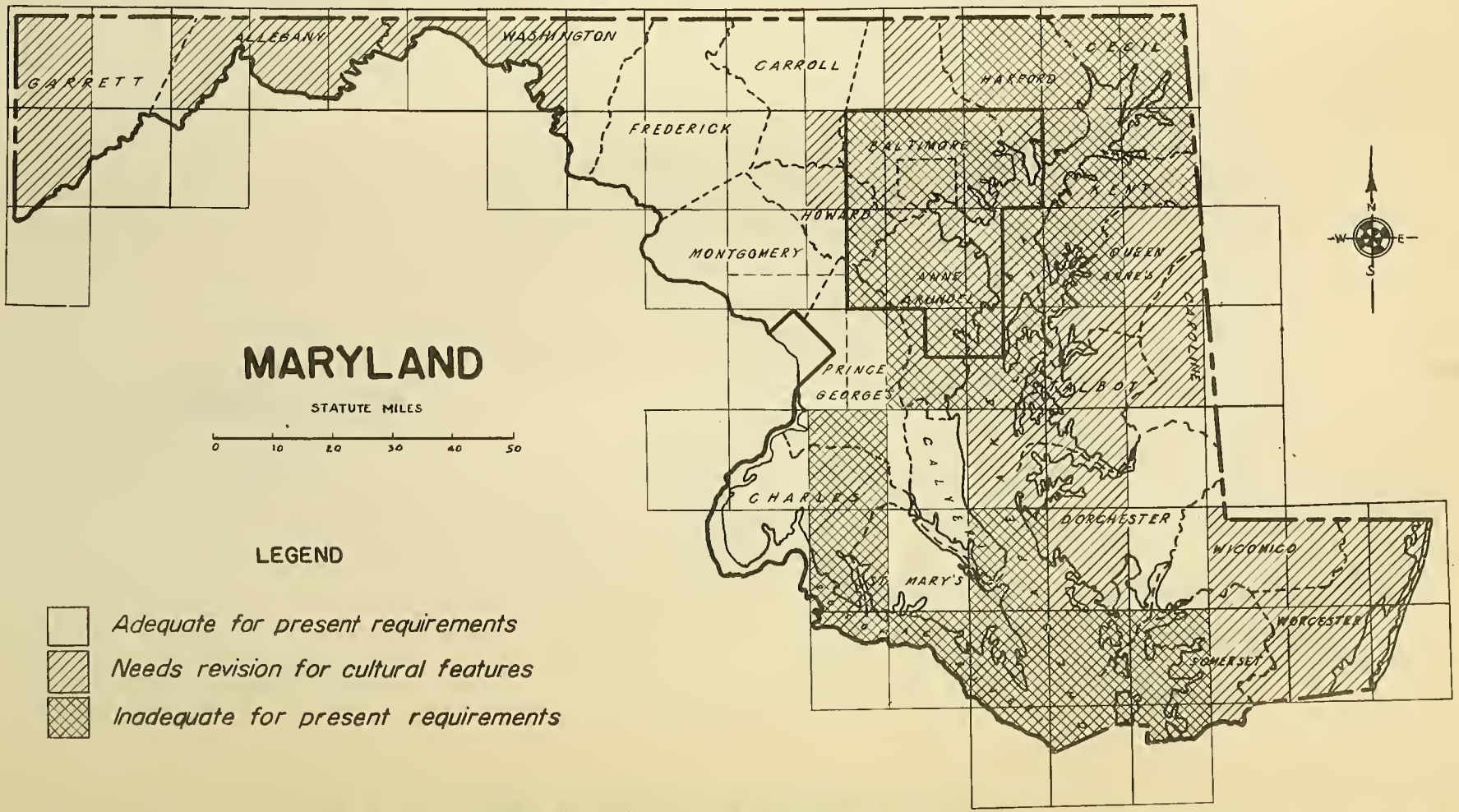
It is planned to cover later in a special report, the development of this projection, the computation and use of forms, the special tables and their uses, etc.

F I G U R E S



U.S.C.&G.S. INDEX MAP — JANUARY 1, 1936

FIGURE I



PRESENT STATUS OF U.S.G.S. TOPOGRAPHIC MAPS — JUNE 1937

FIGURE II

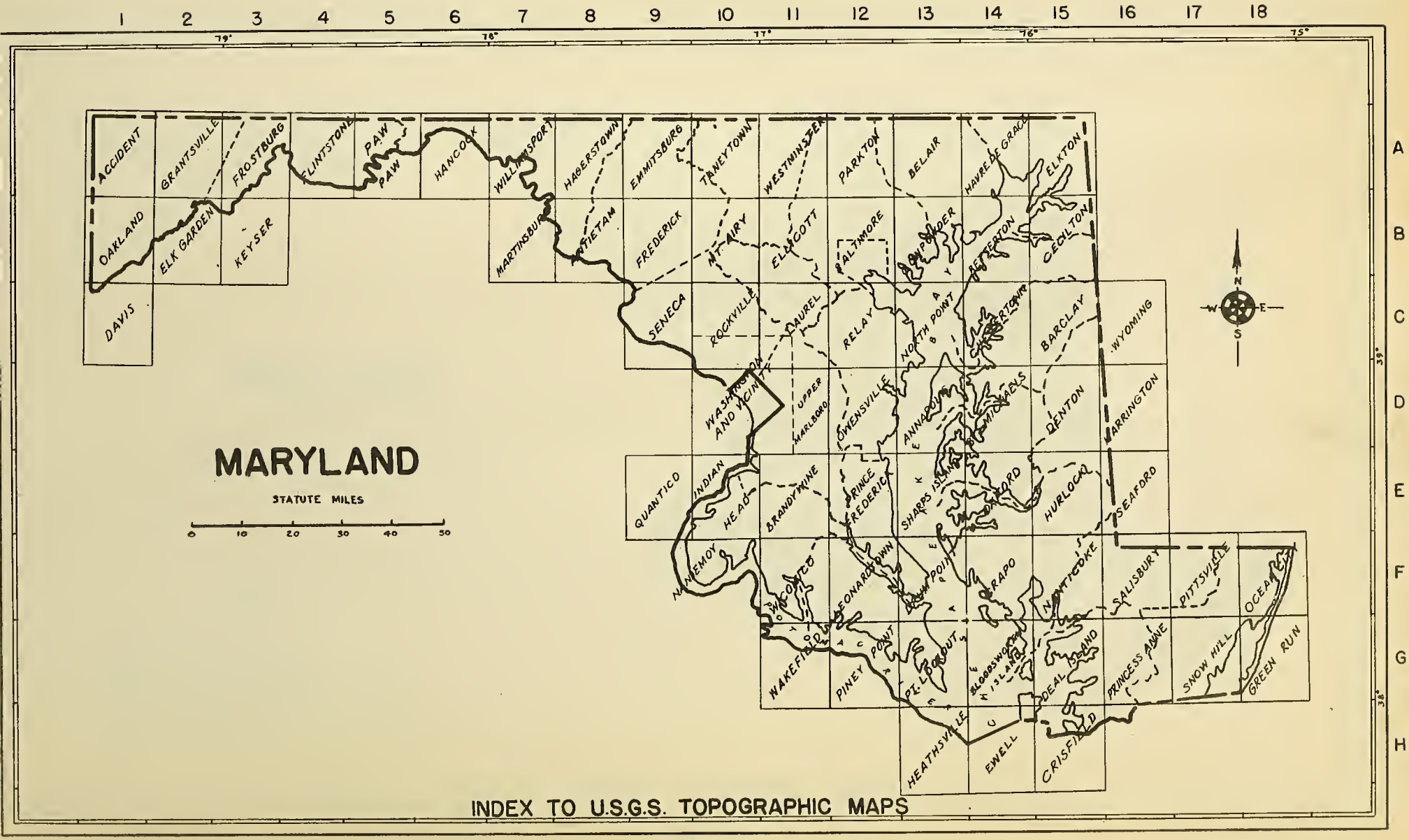
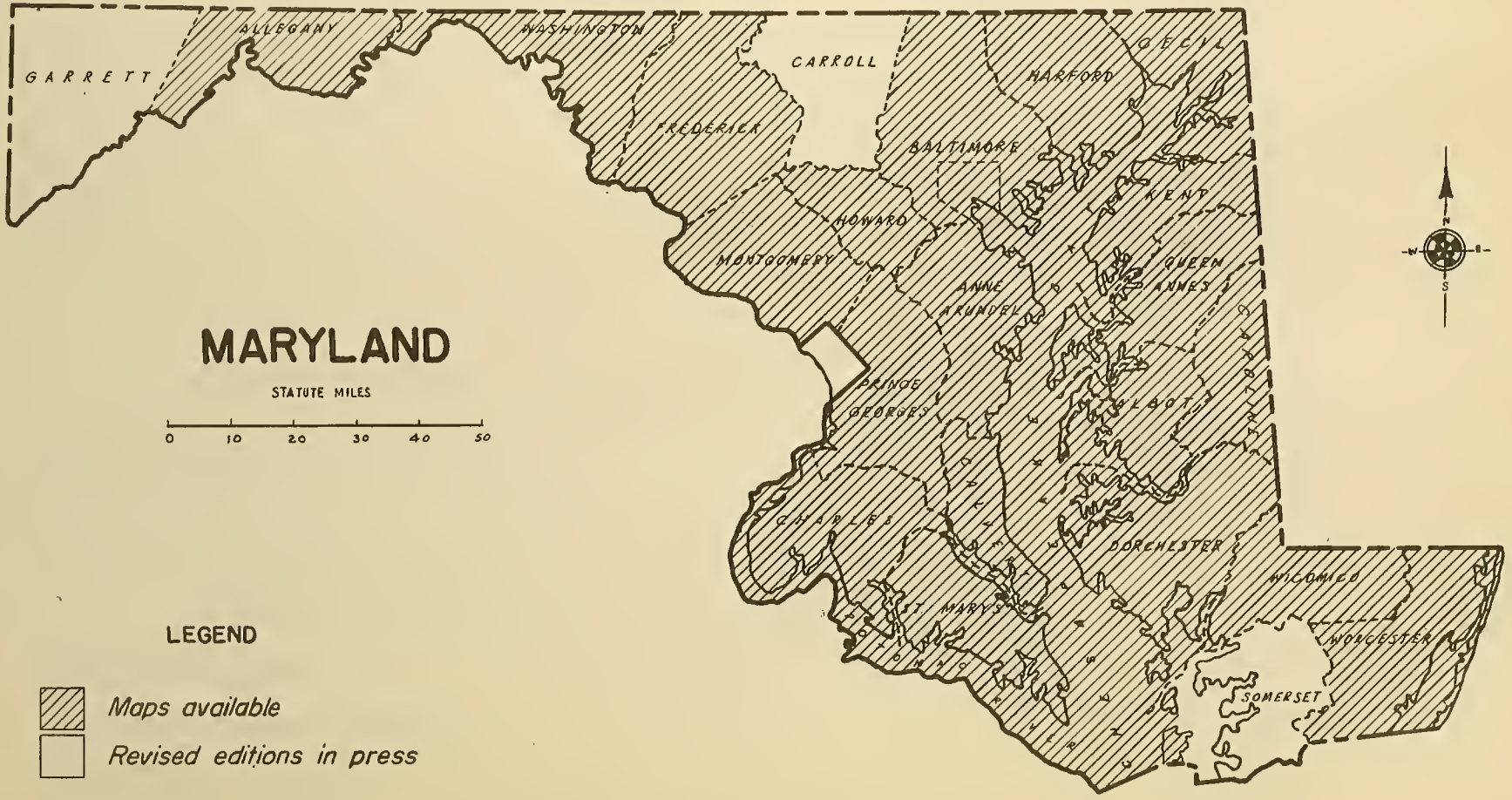
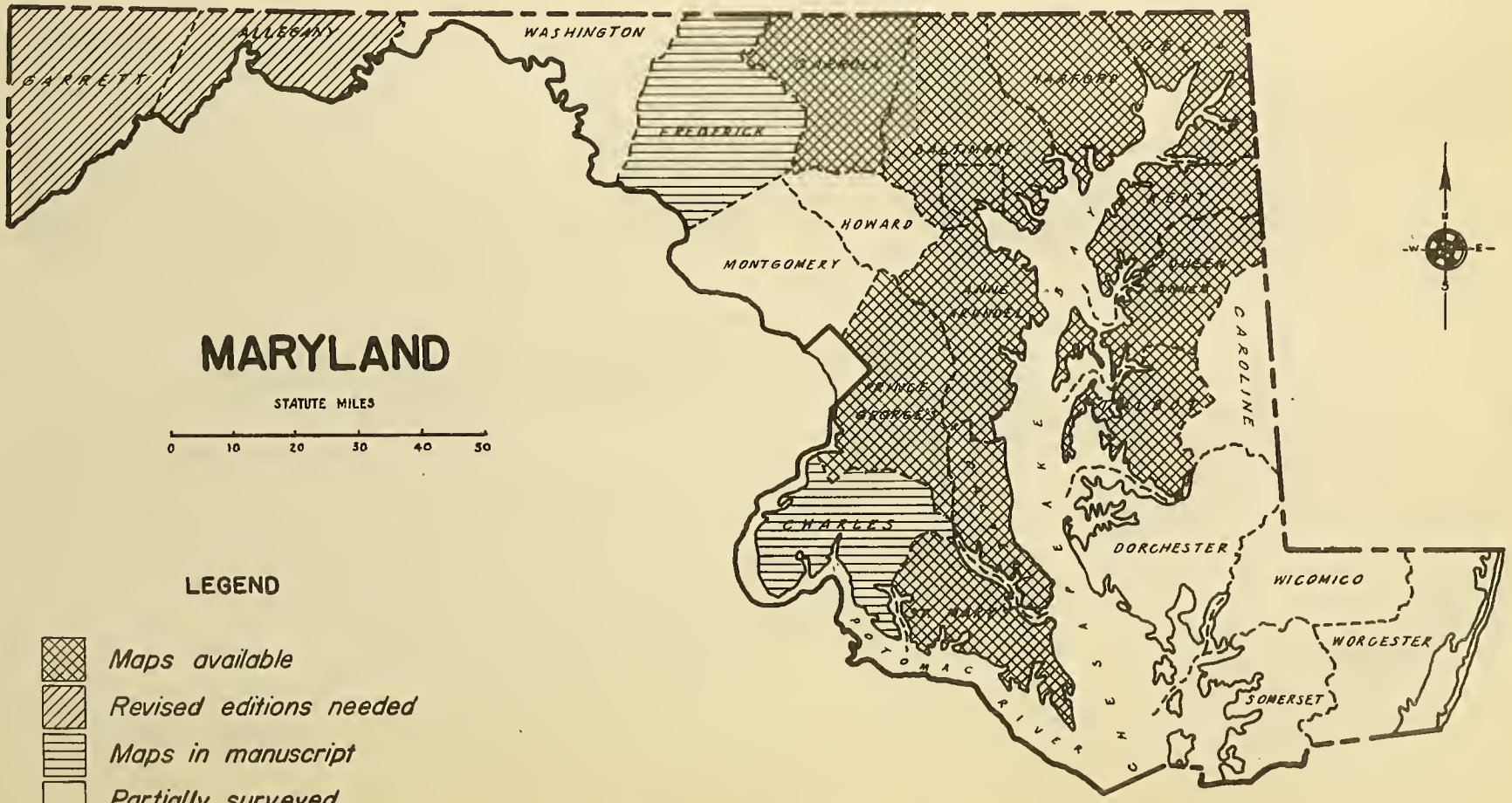

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
79° 78° 77° 76° 75°
A B C D E F G H
39° 38°
ACCIDENT
GRANTSVILLE
FROSTBURG
FLINTSTONE
PAW PAW
HANCOCK
WILLIAMSPORT
HAGERSTOWN
EMMITSBURG
TANEYTOWN
WESTMINSTER
PARKTON
BELAIR
HAVRE DE GRACE
ELKTON
OAKLAND
ELK GARDEN
KEYSER
MARTINSBURG
MIDDLETOWN
FREDERICK
MT AIRY
ELLICOTT
BALTIMORE
BOWLEY'S QUARTER
PETERTON
CECILTON
DAVIS
SENECA
ROCKVILLE
LAUREL
RELAY
NORTH POINT
CHESTERTOWN
BARCLAY
WYOMING
WASHINGTON AND VICINITY
UPPER MARLBORO
OWENSVILLE
ANNAPOLIS
CHESAPEAKE CITY
DENTON
HARRINGTON
QUANTICO
INDIAN HEAD
BRANDYWINE
PRINCE FREDERICK
SHARPS ISLAND
OXFORD
HURLOCK
SEAFORD
NANJEMOY
WICOMICO
LEONARDTOWN
DRAWBRIDGE POINT
CRAPO
NANTICOKE
SALISBURY
PITTSVILLE
OCEAN CITY
WAKEFIELD
PINEY POINT
PT. LOOKOUT
SLOOPSWORTH ISLAND
DEAL ISLAND
PRINCESS ANNE
SNOW HILL
GREEN RUN
HEATHSVILLE
EWELL
CRISFIELD
N
W
E
S
MARYLAND
STATUTE MILES
0 10 20 30 40 50
INDEX TO U.S.G.S. TOPOGRAPHIC MAPS

FIGURE 111



PRESENT STATUS OF MD. G.S. TOPOGRAPHIC MAPS — JUNE 1937

FIGURE IV

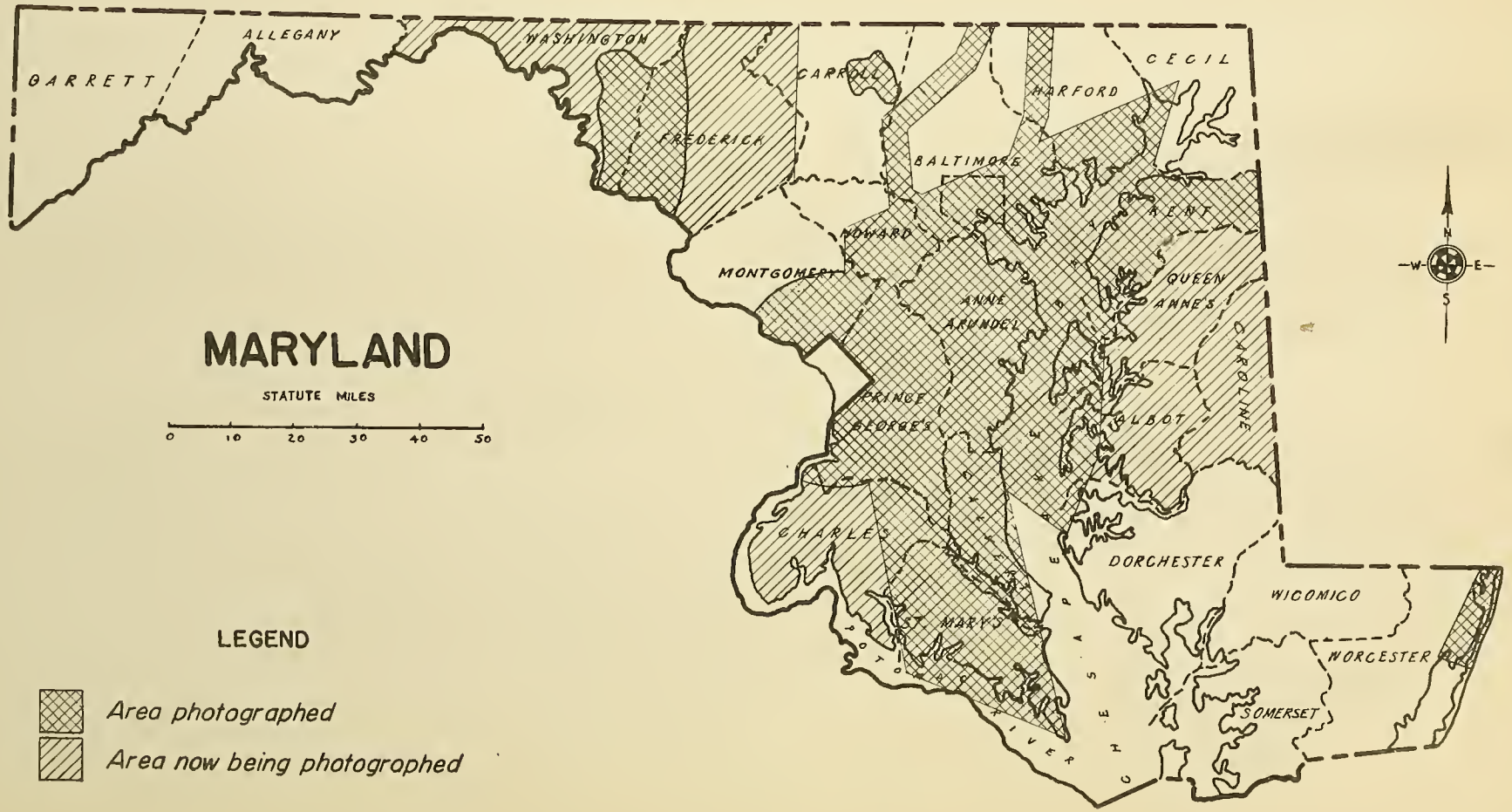


PRESENT STATUS OF MD.G.S. GEOLOGICAL MAPS – JUNE 1937

FIGURE V

PRESENT STATUS OF FORESTRY MAPS — JUNE 1937

FIGURE VI



PRESENT STATUS OF AERIAL PHOTOGRAPHS — JUNE 1937

FIGURE VII

R E F E R E N C E

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INDEX OF

MAPS AND PAMPHLETS ON HAND

JUNE 30, 1937

MARYLAND MAPPING AGENCY
INDEX OF
MAPS AND PAMPHLETS ON HAND, JUNE 30, 1937.

MAPS.

Note: The sizes shown below give first the width and then the height of the map relative to the title and lettering on it.

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DEPARTMENT OF INTERIOR, UNITED STATES GEOLOGICAL SURVEY. Topographic maps; the unit of which is a quadrangle, bounded by parallels of latitude and meridians of longitude; of nearly uniform size about 16⅜ by 20 inches.

* * *

Two-mile scale (1:125,000), Datum is mean Sea Level:

CHOPTANK - Edition of 1908, reprinted 1934, contour interval 10 and 20 feet, Polyconic Projection, North American Datum.

DOVER - Edition of 1906, reprinted 1929, contour interval 20 feet, Polyconic Projection.

FREDERICKSBURG - Edition of 1894, reprinted 1930, contour interval 50 feet, Polyconic Projection.

HARPERS FERRY - Edition of 1893, reprinted 1930, contour interval 100 feet, Polyconic Projection.

NOMINI - Edition of 1898, reprinted 1923, contour interval 20 feet,

PATAPSCO - Edition of 1908, reprinted 1934, contour interval 20 feet, Polyconic Projection, North American Datum.

PATUXENT - Edition of 1906, reprinted 1934, contour interval 20 feet, Polyconic Projection.

ST. MARY'S - Edition of 1906, reprinted 1934, contour interval 20 feet, Polyconic Projection.

TOLCHESTER - Edition of 1908, reprinted 1934, contour interval 20 feet, Polyconic Projection.

* * *

One mile scale (1:62,500), Datum is mean Sea Level:

ACCIDENT - Edition of 1900, reprinted 1933, contour interval 20 feet, Polyconic Projection, North American Datum, 5,000 yard grid based upon U. S. zone system B.

ANNAPOLIS - Edition of 1904, reprinted 1930, contour interval 10 and 20 feet, Polyconic Projection, North American Datum.

ANTIETAM - Edition of 1910, reprinted 1930, contour interval 20 feet, Polyconic Projection, North American Datum.

BALTIMORE - Edition of 1904, reprinted 1924, contour interval 20 feet, Polyconic Projection, North American Datum.

BARCLAY - Edition of 1905, reprinted 1924, contour interval 10 feet, Polyconic Projection, North American Datum.

BELAIR - Edition of 1901, reprinted 1929, contour interval 20 feet, Polyconic Projection, North American Datum.

BETTERTON - Edition of 1900, reprinted 1931, contour interval 20 feet, Polyconic Projection.

BLOODSWORTH ISLAND - Edition of 1903, reprinted 1927, no contours, Polyconic Projection, North American Datum.

BRANDYWINE - Edition of 1913, reprinted 1932, contour interval 20 feet, Polyconic Projection.

CECILTON - Edition of 1900, reprinted 1934, contour interval 20 feet, Polyconic Projection, North American Datum.

CHESTERTOWN - Edition of 1901, reprinted 1931, contour interval 20 feet, Polyconic Projection.

CHAPO - Edition of 1905, reprinted 1934, contour interval 10 feet, Polyconic Projection, North American Datum.

CRISFIELD - Edition of 1903, reprinted 1920, no contours.

DAVIS - Edition of 1921, contour interval 50 feet, Polyconic Projection, North American Datum.

DEAL ISLAND - Edition of 1903, reprinted 1927, contour interval 10 feet, Polyconic Projection, North American Datum.

DENTON - Edition of 1905, reprinted 1927, contour interval 10 feet, Polyconic Projection, North American Datum.

DRUM POINT - Edition of 1905, reprinted 1928, contour interval 20 feet, Polyconic Projection, North American Datum.

ELK GARDEN - Edition of 1922, contour interval 50 feet, Polyconic Projection, North American Datum.

ELLICOTT - Edition of 1906, reprinted 1926, contour interval 20 feet, Polyconic Projection, North American Datum.

ELKTON - Edition of 1900, reprinted 1932, contour interval 20 feet, Polyconic Projection, North American Datum.

EMMITSBURG - Edition of 1911, reprinted 1924, contour interval 20 feet, Polyconic Projection, North American Datum.

EWELL - Edition of 1917, contour interval 10 feet on land and 5, 10, and 20 feet off shore.

FLINTSTONE - Edition of 1900, reprinted 1922, contour interval 20 feet.

FREDERICK - Edition of 1909, reprinted 1931, contour interval 20 feet, Polyconic Projection, North American Datum.

FROSTBURG - Edition of 1908, reprinted 1932, contour interval 20 feet, Polyconic Projection.

GRANTSVILLE - Edition of 1904, reprinted 1927, contour interval 20 feet, Polyconic Projection, North American Datum.

GREEN RUN - Edition of 1901, reprinted 1934, contour interval 10 feet, Polyconic Projection.

GUNPOWDER - Edition of 1901, reprinted 1930, contour interval 20 feet, Polyconic Projection, North American Datum.

HAGERSTOWN - Edition of 1912, reprinted 1928, contour interval 20 feet, Polyconic Projection, North American Datum.

HANCOCK - Edition of 1901, reprinted 1928, contour interval 20 feet, Polyconic Projection, North American Datum.

HARRINGTON - Edition of 1918, contour interval 10 feet.

HAVRE DE GRACE - Edition of 1900, reprinted 1931, contour interval 20 feet, Polyconic Projection.

HEALTHSVILLE - Edition of 1917, contour interval on land 10 and 20 feet changing on 20 foot contour, contours off shore at depths of 5, 10, and 20 feet.

HURLOCK - Edition of 1905, reprinted 1928, contour interval 10 feet, Polyconic Projection, North American Datum.

INDIAN HEAD - Edition of 1925, reprinted 1934, contour interval 20 feet, Polyconic Projection, North American Datum, 5,000 yard grid based upon U. S. zone system B.

INDIAN HEAD - Advance sheet only, scale 1:48,000, contour interval 20 feet, under water contours at depth 5, 10, 20, 30, 40 and 60 feet below mean low water, Polyconic Projection, North American Datum, 5,000 yard grid based on U. S. zone system B.

KEYSER - Edition of 1922, contour interval 50 feet, Polyconic Projection, North American Datum, 5,000 yard grid based upon zone B.P.M.M.

LAUREL - Edition of 1926, reprinted 1932, contour interval 20 feet, Polyconic Projection, North American Datum, 5,000 yard grid based upon U. S. zone system A.

LEONARDTOWN - Edition of 1901, reprinted 1935, contour interval 20 feet, Polyconic Projection.

LEONARDTOWN - Advance sheet only, scale 1:48,000, contour interval 20 feet, 10 feet contour added in dashed line, Polyconic Projection, North American Datum.

MARTINSBURG - Edition of 1916, reprinted 1926, contour interval 20 feet, Polyconic Projection, North American Datum.

MOUNT AIRY - Edition of 1909, reprinted 1925, contour interval 20 feet, Polyconic Projection, North American Datum.

NANJEMOY - Edition of 1915, contour interval 20 feet.

NANTICOKE - Edition of 1903, reprinted 1922, contour interval 10 feet,

NORTH POINT - Edition of 1904, reprinted 1935, contour interval 20 feet, Polyconic Projection, North American Datum.

OAKLAND - Edition of 1900, reprinted 1921, contour interval 20 feet, Polyconic Projection, North American Datum.

OCEAN CITY - Edition of 1901, reprinted 1921, contour interval 10 feet.

OWENSVILLE - Edition of 1905, reprinted 1936, contour interval 20 feet, Polyconic Projection, 5,000 yard grid based upon U. S. zone system A.

OXFORD - Edition of 1904, reprinted 1927, contour interval 10 feet, Polyconic Projection, North American Datum.

PARKTON - Edition of 1902, reprinted 1927, contour interval 20 feet, Polyconic Projection, North American Datum.

PAW PAW - Edition of 1900, corrected 1910, reprinted 1929, contour interval 20 feet, Polyconic Projection, North American Datum.

PINEY POINT - Edition of 1901, reprinted 1927, contour interval 20 feet, Polyconic Projection, North American Datum.

PITTSVILLE - Edition of 1902, reprinted 1914, contour interval 10 feet.

POINT LOOKOUT - Edition of 1912, reprinted 1932, contour interval 20 feet, Polyconic Projection.

PRINCE FREDERICK - Edition of 1910, reprinted 1931, contour interval 20 feet, Polyconic Projection.

PRINCE FREDERICK - Advance sheet only, scale 1:48,000, contour interval 20 feet, 10 foot contour added in dashed line, Polyconic Projection, North American Datum.

PRINCESS ANNE - Edition of 1901, reprinted 1934, contour interval 10 feet, Polyconic Projection.

QUANTICO - Edition of 1927, contour interval 20 feet, Polyconic Projection, North American Datum, 5,000 yard grid based upon U. S. zone system B.

RELAY - Edition of 1907, reprinted 1931, contour interval 20 feet, Polyconic Projection, North American Datum, 5,000 yard grid based upon U. S. zone system A.

ROCKVILLE - Editions of 1923, reprinted 1928, contour interval 20 feet, Polyconic Projection, North American Datum, 5,000 yard grid based upon U. S. zone system B.

SALISBURY - Edition of 1901, reprinted 1934, contour interval 10 feet, Polyconic Projection, North American Datum.

SEAFORD - Edition of 1915, contour interval 10 feet.

SENECA - Edition of 1908, reprinted 1932, contour interval 20 feet, Polyconic Projection, North American Datum.

SHARPS ISLAND - Edition of 1904, reprinted 1930, contour interval 10 feet, Polyconic Projection, North American Datum.

SNOW HILL - Edition of 1901, reprinted 1934, contour interval 10 feet, Polyconic Projection.

ST. MICHAELS - Edition of 1904, reprinted 1923, contour interval 10 feet, Polyconic Projection, North American Datum.

TANEYTOWN - Edition of 1911, reprinted 1932, contour interval 20 feet, Polyconic Projection, North American Datum.

UPPER MARLBORO - Advance sheet only, scale 1:48,000, contour interval 20 feet, 10 foot contour added in dashed line, Polyconic Projection, North American Datum.

WAKEFIELD - Edition of 1932, contour interval 20 feet with 10 foot contour added on Virginia part, Polyconic Projection, North American Datum, 5,000 yard grid based upon U. S. zone system A.

WESTMINSTER - Edition of 1905, reprinted 1924, contour interval 20 feet, Polyconic Projection, North American Datum.

WICOMICO - Edition of 1914, reprinted 1922, contour interval 20 feet,

WILLIAMSPORT - Edition of 1912, reprinted 1924, contour interval 20 feet, Polyconic Projection, North American Datum.

WYOMING - Edition of 1931, contour interval 10 feet, Polyconic Projection, North American Datum, 5,000 yard grid based upon U. S. zone system A.

* * *

One-half mile scale (1:31,680) Datum is mean Sea Level, size 44x56 inches:

WASHINGTON AND VICINITY - Edition of 1929, reprinted 1932, contour interval 10 feet, Polyconic Projection.

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MARYLAND GEOLOGICAL SURVEY. Maps as designated, size, scale and other information follow each individual listing below:

ALLEGANY COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 43x23 inches, 1925.
Forest Areas by Commercial Types - Scale 1:62,500, contour interval 20 feet, size 45x24 inches, 1910.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 52x27 inches, 1924.

ANNE ARUNDEL COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 34x47 inches, 1915.
Forest Areas by Commercial Types - Scale 1:62,500, contour interval 20 feet, size 34x49 inches, 1913.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Geological Formations - Scale 1:62,500, contour interval 20 feet, size 34x48 inches, 1916.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 33x48 inches, 1931.

BALTIMORE COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 36x41 inches, 1919.
Forest Areas by Commercial Types - Scale 1:62,500, contour interval 20 feet, size 41x49 inches, 1914.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Geological Formations - Scale 1:62,500, contour interval 20 feet, size 37x50 inches, 1925.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 41x49, 1924, partially revised 1932.

CALVERT COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 28x41 inches, 1902.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Geological Formations - Scale 1:62,500, contour interval 20 feet, size 28x41 inches, 1903.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 28x40 inches, 1932.

CAROLINE COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 10 feet, size 26x43 inches, 1916.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 10 feet, size 26x43 inches, 1935.

CARROLL COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 32x30 inches, 1922.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Geological Formations - Scale 1:62,500, contour interval 50 feet, size 38x36 inches, 1928.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 38x36 inches, 1922.

CECIL COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 31x35 inches, 1902.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Geological Formations, - Scale 1:62,500, contour interval 20 feet, size 31x35 inches, 1902.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 31x35 inches, 1930.

CHARLES COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 40x39 inches, 1922.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 42x43 inches, 1914.

DORCHESTER COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 41x38 inches, 1926.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 10 feet, size 40x53 inches, 1928.

FREDERICK COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 36x41 inches, 1925.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, 1927, size 44x40 inches.

GARRETT COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 and 50 feet, size 34x39 inches, 1927.
Forest Areas by Commercial Types - Scale 1:62,500, contour interval 20 feet, size 36x42 inches, 1913.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Geological Formation - Scale 1:62,500, contour interval 20 feet, size 36x43 inches, 1902. (out of print)
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, 1902, size 36x43 inches.

HARFORD COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 35x38 inches, 1905.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Geological Formations - Scale 1:62,500, contour interval 20 feet, size 35x37 inches, 1904.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 35x36 inches, 1930.

HOWARD COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 30x22 inches, 1920.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 40x27 inches, 1927.

KENT COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 36x35 inches, 1916.
Forest Areas by Commercial Types - Scale 1:62,500, contour interval 20 feet, size 35x35 inches, 1910.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Geological Formations - Scale 1:62,500, contour interval 20 feet, size 36x35 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 36x35 inches, 1929.

MONTGOMERY COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 39x33 inches, 1916.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 41x48 inches, 1927.

PRINCE GEORGE'S COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 33x47 inches
Forest Areas by Commercial Types - Scale 1:62,500, contour interval 20 feet, size 33x47 inches, 1912.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Geological Formations - Scale 1:62,500, contour interval 20 feet, size 33x47 inches, 1911.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 33x48 inches, 1927. (Out of print)

QUEEN ANNE'S COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 45x36 inches, 1916.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Geological Fromations - Scale 1:62,500, contour interval 10 feet, size 45x36 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 10 feet, size 45x36 inches, 1935.

ST. MARY'S COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 35x37 inches, 1929
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Geological Formations - Scale 1:62,500, contour interval 20 feet, size 36x42 inches, 1903.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 36x41 inches, 1929.

SOMERSET COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 34x37 inches, 1925.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 10 feet, size 36x39 inches, 1906.

TALBOT COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 10 feet, size 40x33 inches, 1916.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.

Geological Formations - Scale 1:62,500, contour interval 10 feet, size 40x34 inches, 1916.
Topography and Election Districts - Scale 1:62,500, contour interval 10 feet, size 40 x33 inches, 1926.

WASHINGTON COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 20 feet, size 51x35 inches, 1920.
Forest Areas by Commercial Types - Scale 1:62,500, contour interval 20 feet, size 52x34 inches, 1913.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 20 feet, size 52x34 inches, 1931.

WICOMICO COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 10 feet, size 38x29 inches, 1925.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 10 feet, size 39x30 inches, 1905.

WORCESTER COUNTY

Agricultural Soils - Scale 1:62,500, contour interval 10 feet, size 38x35 inches, 1929.
Forest Areas by Commercial Types - Scale 1:62,500, contour interval 10 feet, size 36x37 inches, 1905.
Forest Areas by Commercial Types - Scale 1:87,500, size 11x14 inches, 1915.
Topography and Election Districts - Scale 1:62,500, contour interval 10 feet, size 38x36 inches, 1935.

BALTIMORE CITY

Map - Showing original shore lines and drainage, scale 1 inch = 2000 feet, size 29x35 inches, 1935.
Map - Showing amount of overburden covering the underlying rocks, scale 1 inch = 2000 feet, size 29x35 inches, 1935.
Map - Showing configuration of underlying rock floor, scale 1 inch = 2000 feet, size 29x35 inches, 1935.
Map - Showing property, outlines, etc., 4 sheets, scale 1 inch = 1000 feet, contour interval 20 feet, each sheet size 24x31 inches, 1912-1913-1914-1915.
Map - Showing proposed enlargements of Baltimore City, scale 1 mile = 1 inch, size 26x20 inches, 1916.

OTHER URBAN MAPS

Dundalk - Showing property outlines, etc., scale 1 inch = 1000 feet, contour interval 20 feet, size 24x30 inches, 1918. (Out of print)
Sparrows Point - Showing property outlines, etc., scale 1 inch = 1000 feet, contour interval 20 feet, size 24x30 inches, 1917. (Out of print)

Hagerstown - Showing property outlines, etc., scale 1 inch = 1000 feet, contour interval 20 feet, size 29x31 inches, 1927.
Baltimore and vicinity - Topographic map showing route through Baltimore for Washington and Camp Meade, scale 1:125,000, contour interval 20 feet, size 24x28 inches, 1918.

STATE OF MARYLAND

Map - Scale 6 miles = 1 inch, size 44x26 inches.
Map - Scale 8 miles = 1 inch, size 21x35 inches, 1913.
Map - Size 12x9½ inches.
Map - Size 15x11 inches
Map - Scale 1:187,500, 3 sections, size each section 32x52 inches, 1907.
Map - Scale 1:187,500, 3 sections, counties in color size each section 32x52 inches, 1907.
Map - Showing highways, steam and electric railroads and steamboat lines in color, scale 1 inch = 5 miles, size 52x36 inches, 1920.
Map - Showing conditions of roads to date, special listing, scale 1 inch = 5 miles, size 52x36 inches, 1910.
Map - Showing surface elevations, scale 6 miles = 1 inch, size 44x26 inches, 1935.
Map - Showing geological formations, scale 6 miles = 1 inch, size 44x26 inches, 1933.
Map - Showing political divisions, scale 6 miles = 1 inch, size 44x26 inches, 1935.
Map - Showing geological formations and soils, scale 8 miles = 1 inch, size 35x21 inches, 1907
Map - Showing political divisions and election districts, scale 6 miles = 1 inch, size 44x26 inches, 1935.

STATES OF MARYLAND AND DELAWARE

Map - Showing average annual precipitation in inches, scale 1:500,000, size 35x22 inches, 1921.
Map - Showing average annual temperature in degrees Fahrenheit, scale 1:500,000, size 35x22 inches, 1921.
Map - Showing average number of days intervening between the date of last freezing temperature in spring and date of first freezing temperature in fall, scale 1:500,000, size 35x22 inches, 1921.

GEORGES CREEK

Map - Showing the location of mining properties and the areal extent of the Pittsburg ("Big Vein") and lower coals, scale 1:62,500, contour interval 20 feet, size 32x11 inches, 1905.

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MARYLAND STATE ROADS COMMISSION county maps, in sections as shown, size each section 36x36 inches, scale 1 inch - ½ mile, tracings made from enlarged Maryland Geological Survey Topography and Election Districts sheets but not showing contours, printed on linen.

Allegany	in 3 sheets	Howard	in 3 sheets
Anne Arundel	in 4 sheets	Kent	in 3 sheets
Baltimore	in 4 sheets	Montgomery	in 4 sheets
Calvert	in 2 sheets	Prince George's	in 4 sheets
Caroline	in 3 sheets	Queen Anne's	in 4 sheets
Carroll	in 3 sheets	Somerset	in 4 sheets
Cecil	in 3 sheets	St. Mary's	in 4 sheets
Charles	in 4 sheets	Talbot	in 4 sheets
Dorchester	in 4 sheets	Washington	in 4 sheets
Frederick	in 4 sheets	Wicomico	in 4 sheets
Garrett	in 4 sheets	Worcester	in 4 sheets
Harford	in 4 sheets		

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BUREAU OF PLANS AND SURVEYS, BALTIMORE CITY, Maps as designated, scale one inch equals 200 feet.

Topography - 38 sheets covering the old city, size 30x32 inches, 1894.
Atlas Sheets - 34 sheets covering the old city, size 34x44 inches, 1914.
Index Sheet - Scale 1 inch = 100 feet, size 34x44 inches, for all of the sheets.

Note: The sheets covering the new annex are not yet published, but prints of the working tracings may be acquired, the index of these tracings is mounted and on file.

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PENNSYLVANIA WATER & POWER COMPANY, photostat index sheets of aerial survey made by Fairchild Aerial Survey Incorporated.

Index to exposures - Baltimore to Washington Area.
Index to exposures - Baltimore to Pennsylvania line area.

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DEPARTMENT OF COMMERCE, UNITED STATES COAST AND GEODETIC SURVEY geographic positions of the triangulation stations in Maryland, on 134 sheets listed below as to network locations.

Oblique Arc - 21 stations.
Eastern Oblique Arc - 8 stations.
Eastern Oblique Arc and 39° parallel - 9 stations.
Pittsburg Arc - 13 stations.
Providence, R. I. to Norfolk, Va. - 12 stations.
Cape May, N. J. to Norfolk, Va. - 61 stations.
Maryland-Virginia Boundary to Ocean City - 15 stations.
Washington, D. C. to Freeland, Maryland - 121 stations.
Delaware-Pennsylvania Circular Boundary - 87 stations.
James River, Va. to Washington, D. C. - 52 stations.
Back River - 25 stations.
Potomac River - 37 stations.
Washington, D. C. and Vicinity - 52 stations.

Chesapeake Bay - 34 stations.
Severn River - 8 stations.
Gunpowder and Middle Rivers - 15 stations.
Vicinity of Washington, D. C. - 25 stations.
Crisfield to Elkton - 130 stations.
Potomac River, Fort Humphreys to Washington - 81 stations.

A photo print of a map of the States of Maryland and Delaware, scale 8 miles = 1 inch, size 35x21 inches, showing graphically the network of the triangulation.

Also the plane coordinates for 104 of the above geographic positions.

* * *

NAUTICAL CHARTS

77 - Chesapeake Bay, northern part, approximate scale 1:200,000, size 32x35 inches, Nautical mile = .061 inches and Statute mile = .053 inches.
78 - Chesapeake Bay, southern part, approximate scale 1:200,000, size 31x32 inches, Nautical mile = .061 inches and Statute mile = .053 inches.
539 - Patuxent River, scale 1:40,000, size 32x38 inches, Nautical mile = 1.824 inches and Statute mile = 1.584 inches.
545 - Baltimore Harbor, scale 1:15,000, size 30x40 inches, Nautical mile = 4.864 inches and Statute mile = 4.224 inches.
548 - Chester River, scale 1:40,000, size 33x34 inches, Nautical mile = 1.824 inches and Statute mile = 1.584 inches.
549 - Approaches to Baltimore Harbor, scale 1:40,000, size 33x39 inches, Nautical mile = 1.824 inches and Statute mile = 1.584 inches.
557 - Potomac River, entrance to Piney Point, scale 1:40,000, size 35x40 inches, Nautical mile = 1.824 inches and Statute mile = 1.584 inches.
558 - Potomac River, Piney Point to Lower Cedar Point, scale 1:40,000, size 34x45 inches, Nautical mile = 1.824 inches and Statute mile = 1.584 inches.
559 - Potomac River, Lower Cedar Point to Mattawoman Creek, scale 1:40,000, size 30x39 inches, Nautical mile = 1.824 inches and Statute mile = 1.584 inches.
560 - Potomac River, Mattawoman Creek to Georgetown, scale 1:40,000, size 29x40 inches, Nautical mile = 1.824 inches and Statute mile = 1.584 inches.
Washington Harbor, scale 1:20,000, Nautical mile = 3.648 inches and Statute mile = 3.168 inches.
566 - Chesapeake Bay - Thomas Point to Sandy Point, scale 1:20,000, size 32x34 inches, Nautical mile = 3.648 inches and Statute mile = 3.168 inches.
567 - Wicomico River, scale 1:20,000, size 34x44 inches, Nautical mile = 3.648 inches and Statute mile = 3.168 inches.
1220 - Fenwick Island Light to Chincoteaque Inlet, scale 1:80,000, size 33x38 inches, Nautical mile = .912 inches and Statute mile = .792 inches.

1221 - Chincoteaque Inlet to Hog Island Light, scale 1:80,000, size 31x41 inches, Nautical mile = .912 inches and Statute mile = .792 inches.
1222 - Chesapeake Bay Entrance, scale 1:80,000, size 33x43 inches, Nautical mile = .912 inches and Statute mile = .792 inches.
1223 - Chesapeake Bay - Wolf Trap to Smith Point, scale 1:80,000, size 31x39, Nautical mile = .912 inches and Statute mile = .792 inches.
1224 - Chesapeake Bay - Smith Point to Cove Point, scale 1:80,000, size 30x41 inches, Nautical mile = .912 inches and Statute mile = .792 inches
1225 - Chesapeake Bay - Cove Point to Sandy Point, scale 1:80,000, size 35x38 inches, Nautical mile = .912 inches and Statute mile = .792 inches.
1226 - Chesapeake Bay - Sandy Point to Head of Bay, scale 1:80,000, size 34x38, Nautical mile = .912 inches and Statute mile = .792 inches
Back Creek, scale 1:20,000, Nautical mile = 3.648 inches and Statute mile = 3.168 inches.

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MAPS OF CITIES, TOWNS AND SUB-DIVISIONS

Baltimore - Scale 1 inch = 2,000 feet, size 28x34 inches, 1935.

ALLEGANY COUNTY

Barton - Scale 1 inch = 100 feet, size 41x28 inches, blue print, 1922.
Cumberland - Scale 1 inch = 800 feet, size 24x30 inches, lithoprint, 1935.
Eckhart - Scale 1 inch = 500 feet, size 12x16 inches, tracing.
Frostburg - Scale 1 inch = 400 feet, size 28x24 inches, tracing.
Lonaconing - Scale 1 inch = 200 feet, size 10x18 inches, tracing.
Luke - Scale 1 inch = 300 feet, size 36x36 inches, tracing, 1924.
Midland - Scale 1 inch = 100 feet, size 29x28 inches, tracing, 1937.
Westernport - Scale 1 inch = 300 feet, size 36x36 inches, tracing, 1924 .

ANNE ARUNDEL COUNTY

Annapolis - Scale 1 inch = 500 feet, size 28x28 inches, lithoprint, 1928.
Arundel Beach - Scale 1 inch = 200 feet, size 27x24 inches, blue print, 1908.
Avalon Shores - Scale 1 inch = 100 feet, size 15x16 inches, tracing, 1932.
Baltimore Highlands - Scale 1 inch = 200 feet, size 19x21 inches, blue print.
Beverly Beach - Scale 1 inch = 100 feet, size 26x43 inches, blue print, 1936.
Bodkin Plains - Scale 1 inch = 200 feet, size 26x44 inches, blue print, 1934.
Cedarhurst - No scale, size 27x33 inches, blue print.
Fair Acres - Scale 1 inch = 100 feet, size 12x12 inches, blue print, 1935.
Fort Severn - Scale 1 inch = 100 feet, size 40x36 inches, blue print.
Franklin Manor Beach - Scale 1 inch = 200 feet, size 32x24 inches, lithoprint, 1921.
Green Haven - Scale 1 inch = 400 feet, size 12x20 inches, sales plat.
Margate - Scale 1 inch = 200 feet, size 27x19 inches, blue print, 1929.
North Beach Park - Scale 1 inch = 100 feet, size 43x25 inches, blue print, 1926.

North Shore - Scale 1 inch = 100 feet, size 11x17 inches, electro print, 1933.
Riviera Beach - Scale 1 inch = 200 feet, size 30x35 inches, black line print, 1924.
Selby on the Bay - Scale 1 inch = 200 feet, size 27x22 inches, black line print.
Shoreacres - Scale 1 inch = 200 feet, size 24x33 inches, blue print, 1929.
Shoreland - Scale 1 inch = 100 feet, size 39x20 inches, blue print, revised, 1933.
Sunset Beach - Scale 1 inch = 100 feet, size 27x36 inches, blue print, 1929.
Truxton Heights - Scale 1 inch = 100 feet, size 30x22 inches, blue print, 1936.

BALTIMORE COUNTY

Anneslie - Scale 1 inch = 100 feet, size 35x24 inches, tracing, 1916.
Arbutus - Scale 1 inch = 800 feet, size 34x24 inches, tracing.
Chesaco Park - Scale 1 inch = 100 feet, size 36x19 inches, blue print, 1911.
Dunbarton - Scale 1 inch = 400 feet, size 24x21 inches, tracing, 1925.
Dundalk - Scale 1 inch - 200 feet, size 33x27 inches, lithoprint.
East Sudbrook Park - Scale 1 inch = 60 feet, size 32x26 inches, blue print, 1926.
English Consul - Scale 1 inch = 400 feet, size 32x22 inches, tracing.
Gwynnlake Park - Scale 1 inch = 100 feet, size 24x20 inches, blue print, 1927.
Halethorpe - Scale 1 inch = 300 feet, size 17x15 inches, tracing.
Hazelwood Farms - Scale 1 inch = 100 feet, size 15x21 inches, blue print, 1919.
Idlewylde - Scale 1 inch = 100 feet, size 45x21 inches, blue print, revised 1930.
Lansdowne - Scale 1 inch = 400 feet, size 32x22 inches, tracing.
Long Beach Estates - Scale 1 inch = 200 feet, size 20x35 inches, blue print, 1910.
Maryland Manor - Scale 1 inch = 100 feet, size 22x26 inches, blue print, 1932.
Midriver Park - Scale 1 inch = 100 feet, size 26x13 inches, blue print, 1911.
Montrose Farms - Scale 1 inch = 100 feet, size 32x16 inches, blue print, 1926.
Parkville Summit - Scale 1 inch = 50 feet, size 35x33 inches, blue print, revised 1929.
Pikesville - Scale 1 inch = 400 feet, size 24x21 inches, tracing, 1925.
Relay - Scale 1 inch = 800 feet, size 34x24 inches, tracing.
Rosedale Gardens - Scale 1 inch = 100 feet, size 22x26 inches, blue print, 1920.
Rosedale Terraces - Scale 1 inch = 200 feet, size 23x34 inches, blue print, 1910.
Stoneleigh - Scale 1 inch = 100 feet reduced, size 15x11 inches, tracing, 1928.
Sudbrook Park - Scale 1 inch = 400 feet, size 24x21 inches, tracing, 1925.
Towson - Scale 1 inch = 300 feet, size 33x22 inches, tracing, 1927.
Twin River Beach - Scale 1 inch = 100 feet, size 35x21 inches, blue print 1929.

CALVERT COUNTY

Chesapeake Beach - Scale 1 inch = 1,000 feet, size 14x32 inches, tracing, 1908.
North Chesapeake Beach = No scale, size 28x33 inches, tracing.

CAROLINE COUNTY

Denton - Scale 1 inch = 100 feet, size 41x29 inches, blue print, 1920.
Federalsburg - Scale 1 inch = 200 feet, size 36x24 inches, black line print, 1933.
Hillsboro - Scale 1 inch = 200 feet, size 30x20 inches, blue print, 1920.
Preston - Scale 1 inch = 100 feet, size 21x15 inches, photostat, 1921.
Ridgely - Scale 1 inch = 160 feet, size 35x30 inches, black line print, 1927.

CARROLL COUNTY

Manchester - Scale 1 inch = 200 feet, size 26x27 inches, tracing, 1934-5.
Mount Airy - Scale 1 inch = 300 feet, size 21x27 inches, tracing.
New Windsor - Scale 1 inch = 200 feet, size 22x18 inches, tracing.
Sykesville - Scale 1 inch = 200 feet, size 30x20 inches, blue print, 1920.
Taneytown - Scale 1 inch = 200 feet, size 24x24 inches, tracing.
Union Bridge - Scale 1 inch = 200 feet, size 24x24 inches, tracing.
Westminster - Scale 1 inch = 200 feet, size 55x33 inches, tracing.

CECIL COUNTY

Cecilton - Scale 1 inch = 200 feet, size 21x17 inches, tracing.
Elkton - Scale 1 inch = 400 feet, size 31x20 inches, tracing, 1934.
Perryville - Scale 1 inch = 200 feet, size 32x23 inches, tracing, 1923.
Rising Sun - Scale 1 inch = 100 feet, size 58x36 inches, black line print, 1936.

CHARLES COUNTY

Indian Head - Scale 1 inch = 200 feet, size 28x18 inches, tracing, 1935.
La Plata - Scale 1 inch = 200 feet, size 24x28 inches, tracing.

DORCHESTER COUNTY

Cambridge - Scale 1 inch = 300 feet, size 38x34 inches, black line print.
East New Market - Scale 1 inch = 100 feet, size 29x18 inches, tracing.
Hurlock - Scale 1 inch = 200 feet, size 40x23 inches, black line print.
Secretary - Scale 1 inch = 120 feet, size 33x30 inches, black line print, 1927.
Vienna - Scale 1 inch = 100 feet, size 31x25 inches, tracing, 1933.

FREDERICK COUNTY

Brunswick - Scale 1 inch = 500 feet, size 23x17 inches, tracing.
Burkittsville - Scale 1 inch = 26-2/3 rods, size 10x12 inches, tracing.
Emmitsburg - Scale 1 inch = 300 feet, size 16x9 inches.
Frederick - Scale 1 inch = 400 feet, size 37x34 inches, photo print, 1928.
Mount Airy - Scale 1 inch = 300 feet, size 21x27 inches, tracing.

New Market - Scale 1 inch = 16 rods, size 16x9 inches, tracing.
Point of Rocks - Scale 1 inch = 165 feet, size 20x15 inches, tracing.
Thurmont - Scale 1 inch = 26-2/3 rods, size 15x17 inches, tracing.
Walkersville - Scale 1 inch=500 feet, size 13x11 inches, tracing.
Woodsboro - Scale 1 inch = 16 rods, size 28x13 inches, tracing.

GARRETT COUNTY

Accident - No scale, size 17x15 inches, tracing.
Bloomington - Scale 1 inch = 300 feet, size 36x36 inches, tracing, 1924.
Friendsville - Scale 1 inch = 60 feet, size 49x29 inches, black line print, 1922.
Grantsville - Scale 1 inch = 200 feet, size 33x22 inches, blue print, 1935.
Kitzmiller - Scale 1 inch = 200 feet, size 9x11 inches, tracing.
Loch Lynn Heights - Scale 1 inch = 50 feet, size 20x16 inches, tracing
Mountain Lake Park - No scale, size 10x12 inches, tracing.
Oakland - Scale 1 inch = 200 feet, size 31x26 inches, tracing.

HARFORD COUNTY

Aberdeen - Scale 1 inch = 300 feet, size 36x24 inches, blue print, 1919.
Abington Beach - Scale 1 inch = 150 feet, size 19x25 inches, blue print, 1926.
Bel Air - Scale 1 inch = 200 feet, size 41x34 inches, tracing.
Havre de Grace - Scale 1 inch = 300 feet, size 36x24 inches, black line print.

HOWARD COUNTY

Ellicott City - Scale 1 inch = 123-3/4 feet, size 49x31 inches, black line print, 1927.

KENT COUNTY

Betterton - Scale 1 inch = 200 feet, size 36x24 inches, blue print, 1933.
Chestertown - Scale 1 inch = 300 feet, size 20x19 inches, tracing, 1924.
Millington - Scale 1 inch = 200 feet, size 30x20 inches, blue print, 1916.
Rock Hall - Scale 1 inch = 200 feet, size 36x25 inches, black line print, 1932.

MONTGOMERY COUNTY

Gaithersburg - Scale 1 inch = 600 feet, size 25x15 inches, tracing.
Rockville - Scale 1 inch = 200 feet, size 40x24 inches, blue print, 1932.
Washington Grove - Scale 1 inch = 600 feet, size 25x15 inches, tracing.

PRINCE GEORGE'S COUNTY

Ammendale - Scale 1 inch = 300 feet, size 28x20 inches, black line print.
Beltsville Heights - Scale 1 inch = 100 feet, size 32x50 inches, tracing, 1920.
Berwyn Heights - Scale 1 inch = 200 feet, size 28x34 inches, tracing.
Bladensburg - No scale, size 25x20 inches, black line print.
Bowie - Scale 1 inch = 200 feet, size 42x30 inches, black line print, 1936.

Cheverly Gardens - No scale, size 25x16 inches, black line print.
College Park - Scale 1 inch = 200 feet, size 20x22 inches, blue print.
Dixie Dale - No scale, size 14x20 inches, tracing.
Glendale - Scale 1 inch = 160 feet, size 36x19 inches, black line print.
Good Hope Hills - No scale, size 26x19 inches, black line print.
Home Acres - Scale 1 inch = 200 feet, size 24x19 inches, black line print. 1936.
Landover Hills - Scale 1 inch = 200 feet, size 24x19 inches, black line print, 1936.
Laurel - Scale 1 inch = 300 feet, size 32x21 inches, tracing, 1926.
Lincoln - Scale 1 inch = 100 feet, size 18x24 inches, black line print, 1930.
Magnolia Springs - Scale 1 inch = 200 feet, size 20x19 inches, black line print, 1927.
Marlboro Heights - No scale, size 24x19 inches, black line print, 1934.
North Kenilworth - No scale, size 14x20 inches, tracing.
Riverdale Heights - Scale 1 inch = 100 feet, size 26x34 inches, tracing, 1919.
Seabrook - Scale 1 inch = 200 feet, size 36x32 inches, black line print.
Seabrook Acres - Scale 1 inch = 100 feet, size 18x24 inches, black line print, 1936.
Sherman Park - No scale, size 28x16 inches, tracing.
Spaulding Heights - Scale 1 inch = 100 feet, size 18x24 inches, black line print.

QUEEN ANNE'S COUNTY

Centerville - Scale 1 inch = 200 feet, size 32x25 inches, blue print, 1933.
Church Hill - Scale 1 inch = 200 feet, size 30x21 inches, blue print, 1927.
Queen Anne - Scale 1 inch = 200 feet, size 30x21 inches, blue print, 1920.
Queenstown - No scale, size 22x16 inches, tracing, 1936.

SOMERSET COUNTY

Crisfield - Scale 1 inch = 300 feet, size 36x24 inches, black line print.
Princess Anne - Scale 1 inch = 200 feet, size 36x24 inches, black line print.

ST. MARY'S COUNTY

Pine Point Shores - Scale 1 inch = 100 feet, size 30x22 inches, blue print, 1926.

TALBOT COUNTY

Easton - Scale 1 inch = 300 feet, size 22x26 inches, lithoprint, 1929.
St. Michaels - Scale 1 inch = 200 feet, size 33x30 inches, black line print, 1927.
Trappe - Scale 1 inch = 200 feet, size 30x20 inches, 1933.

WASHINGTON COUNTY

Boonsboro - Scale 1 inch = 200 feet, size 14x18 inches, tracing, 1924.
Clear Spring - Scale 1 inch = 200 feet, size 30x20 inches, blue print, 1920.

Funkstown - Scale 1 inch = 100 feet, size 44x34 inches, tracing, 1924.
Hagerstown - Scale 1 inch = 600 feet, size 36x24 inches, lithoprint, Copyright 1936.
Sharpsburg - Scale 1 inch = 200 feet, size 24x16 inches, tracing, 1936.
Smithsburg - Scale 1 inch = 200 feet, size 41x30 inches, blue print, 1919.
Williamsport - Scale 1 inch = 200 feet, size 36x24 inches, blue print, 1934.

WICOMICO COUNTY

Delmar - No scale, size 36x24 inches, black line print.
Mardela Springs - Scale 1 inch = 100 feet, size 42x32 inches, black line print.
Salisbury - Scale 1 inch = 1,000 feet, size 17x18 inches, lithoprint.
Sharptown - Scale 1 inch = 100 feet, size 35x24 inches, black line print, 1935.

WORCESTER COUNTY

Berlin - Scale 1 inch = 200 feet, size 33x30 inches, black line print, 1927.
Ocean City - Scale 1 inch = 280 feet, size 33x30 inches, black line print, 1927.
Pocomoke City - Scale 1 inch = 200 feet, size 35x30 inches, black line print, 1931.
Snow Hill - Scale 1 inch = 532 feet, size 14x14 inches, tracing, 1912.

Note: No scale may refer either to a map on which there is no scale shown or to a tracing that has been made from a photostatic print.

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MISCELLANEOUS

Hagerstown Municipal Airport = Scale 1 inch - 200 feet, size 30x21 inches, blue print.
Prettyboy Dam Land Record Index Sheet - Scale 1 inch = 2,000 feet, size 29x19 inches, white print, 1931.
Loch Raven Dam Land Record Index Sheet - Scale 1 inch = 1 mile, size 29x19 inches, white print, 1925.
Aerial Photographic Index Map of Washington Boulevard - Scale 1 inch = 1 mile, size 24x19 inches, white print, 1927.
Soil Conservation Service, Map showing Patapsco River Watershed - Area to be photographed - Scale 1 inch = 1 mile, size 15x10½ inches, white print, 1936.
Soil Conservation Service, Map showing Catoctin Creek Watershed - Area to be photographed - Scale 1 inch = 1 mile, size 15x29 inches, white print, 1936.
Soil Conservation Service, Map showing Demonstration Area, Beltsville - Scale 1 inch = 1 mile, size 30x24 inches, white print, 1936.
Map of Greater Washington - Scale 1 inch = 1/2 mile, size 35x30 inches, lithoprint.

Baltimore Municipal Airport - Scale 1 inch = 400 feet, two sheets each, size 23x11, white print, 1931.

Logan Field Airport - Scale 1 inch = 300 feet, size 22x17 inches, white print, 1936.

Map of Maryland and Delaware - The Federal Aid Highway System - Scale 1 inch = 7.891 miles, size 31x21½ inches, lithoprint in colors, 1935.

Map of Baltimore-Washington-Annapolis Region, Maryland State Planning Commission, Sub-Committee for region - Scale 1 inch = 1 mile, in two sections total size 60x60 inches, lithoprint, 1936. Also reduced print of same, scale 1 inch = 2 miles, size 30x30 inches.

Iowa Transportation Map, Bureau of Public Roads - Scale approximately 1 inch = 4 miles, in 8 sheets, size each sheet 36x26 inches, lithoprint in colors, 1934.

PAMPHLETS AND PUBLICATIONS

DEPARTMENT OF COMMERCE, UNITED STATES COAST AND GEODETIC SURVEY, pamphlet form, book size.

Paper binding -

Serial 453, United States Magnetic Tables and Magnetic Charts for 1925.
Serial 455, Results of Magnetic Observations in 1928.
Serial 457, Magnetic Declination in Delaware, Maryland, Virginia, West Virginia, Kentucky and Tennessee, with charts.
Serial 482, Results of Magnetic Observations in 1929.
Serial 540, 1932, Magnetic Declinations in the United States, 1930.
Serial 544, Results of Magnetic Observations in 1930.
Serial 575, Tide Tables Atlantic Ocean, 1936.
Serial 577, Catalog of U. S. Coast and Geodetic Survey Nautical Charts, Coast Pilots, Tide Tables, Current Tables, Tidal Current Charts, Airway Maps, April 1935.
Serial 592, Magnetic Declination in the United States.
Special Publication 8, Formulas and Tables for the Computation of Geodetic Positions.
Special Publication 23, U. S. Coast and Geodetic Survey, Description of its work, methods and organization.
Special Publication 41, Use of Mean Sea Level as the Datum for Elevations.
Special Publication 57, General Theory of Polyconic Projections.
Special Publication 60, A Study of Map Projections in General.
Special Publication 67, Latitude Developments Connected With Geodesy and Cartography.
Special Publication 71, Relation Between Plane Rectangular Coordinates and Geographic Positions.
Special Publication 76, Triangulation in Massachusetts.
Special Publication 85, Plane Table Manual.
Special Publication 106, Earth Movements in California.
Special Publication 117, The Earth's Magnetism.
Special Publication 145, Manual of Second and Third Order Triangulation. and Traverse.
Special Publication 151, Comparison of Old and New Triangulation in California.
Special Publication 194, Manual of Traverse Computations on the Lambert Grid.
Special Publication 197, Practical Air Navigation and the Use of the Aeronautical Charts of the Department of Commerce.
Special Publication 207, Geodetic Operations in the United States, 1933-1935.
Work of U. S. Coast and Geodetic Survey, 1909.
Telegraphic longitudes, the Pacific Arcs from San Francisco to Manila, 1903-1904.
Field Engineers Bulletin No. 7, June, 1934.
Field Engineers Bulletin No. 8, December, 1934.
Field Engineers Bulletin No. 10, December, 1936.

Cloth binding -

Special Publication 68, Elements of Map Projection.
Special Publication 101, Precise Triangulation, Traverse and Leveling in North Carolina.

Special Publication 114, Triangulation in Maryland.
Special Publication 120, Manual of First Order Triangulation.
Special Publication 137, Traverse Manual.
Special Publication 138, Manual of Triangulation Computation.
Special Publication 140, Manual of First Order Leveling.
Special Publication 145, Manual of Second and Third Order Triangulation.
Special Publication 193, Manual of Plane Coordinate Computation.
Special Publication 195, Manual of Traverse Computation on the Transverse Mercator Grid.
General Instructions for the field work of the U. S. Coast and Geodetic Survey - 1908.
The Evolution of the Nautical chart.

DEPARTMENT OF INTERIOR, UNITED STATES GEOLOGICAL SURVEY, pamphlet form, book size

Paper binding -

Bulletin 307, Manual of Topographic Methods, 1906.
Bulletin 434, Results of Spirit Leveling in Delaware, District of Columbia, Maryland and Virginia 1896 to 1909 inclusive.
Bulletin 563, Results of Spirit Leveling in Maryland.
Bulletin 644-K, Primary Traverse in Maryland and the District of Columbia.
Bulletin 689, Boundaries, areas, Geographic Centers and Altitudes of the United States and the Several States, with maps.
Bulletin 788, Topographic Instructions of the U. S. Geological Survey.
Bulletin 788-A, Topographic Instructions of the U. S. Geological Survey.
Bulletin 788-B, Topographic Instructions of the U. S. Geological Survey.
Bulletin 788-C, Topographic Instructions of the U. S. Geological Survey.
Bulletin 788-D, Topographic Instructions of the U. S. Geological Survey.
Bulletin 788-E, Topographic Instructions of the U. S. Geological Survey.
Graphic Tables and Formulas - 1908.

MARYLAND GEOLOGICAL SURVEY

Paper binding -

Report on the Survey of the Boundary Line between Allegany and Garrett Counties.

UNITED STATES DEPARTMENT OF AGRICULTURE, BUREAU OF SOILS.
In cooperation with the Maryland Geological Survey and the Maryland Agricultural Experiment Station:

Soil Survey of each of the 23 counties in Maryland, in pamphlet form, book size, describing the area, climate, agriculture and soils, together with a soil map of the county folded in back of same.

DEPARTMENT OF AERONAUTICAL ENGINEERING OF SYRACUSE UNIVERSITY, pamphlet form, book size.

Paper binding -

The following bulletins on Topographic Mapping by Aerial Photography:

Adoption of the principle of Parallax to Comparator and Photogoniometer Measurements, March, 1931.
Supplemental Topics in Aerial Photogrammetry Concerning Computations based upon Comparator Measurements, November, 1933.
The Spacial Orientation of Aerial Photographs, February, 1936.

MISCELLANEOUS

An Analysis of the Status of Mapping in Pennsylvania, Pennsylvania State Planning Board.
Bulletin 79 - Azimuth Determination, Ohio State University.
Final Map Standards, U. S. Department of Agriculture, Bureau of Public Roads.
Final Report - Ohio Cooperative Topographic Survey - 1933.
General Bulletin - Connecticut Geodetic Survey.
Instructions and Equipment Details of the Texas Civil Works Control Surveys.
Land Court, 1933.
Land Court Instructions as to Surveys, 1932.
Lectures in Geodesy by H. J. Shea - Part I and Part II.
Report of the Geodetic and Topographic Survey of Richmond, Virginia, 1923.
Suggested Symbols for Plans, Maps and Charts, National Resources Committee.
Technical Procedure for Geodetic Surveys, Massachusetts Geodetic Survey, 1936.
The Massachusetts Local Control Survey.
The Standard System of Plane Coordinates for Pennsylvania, Pennsylvania State Planning Board.
Tree Heights from Air Photographs, The Association of Professional Engineers of the Province of British Columbia.